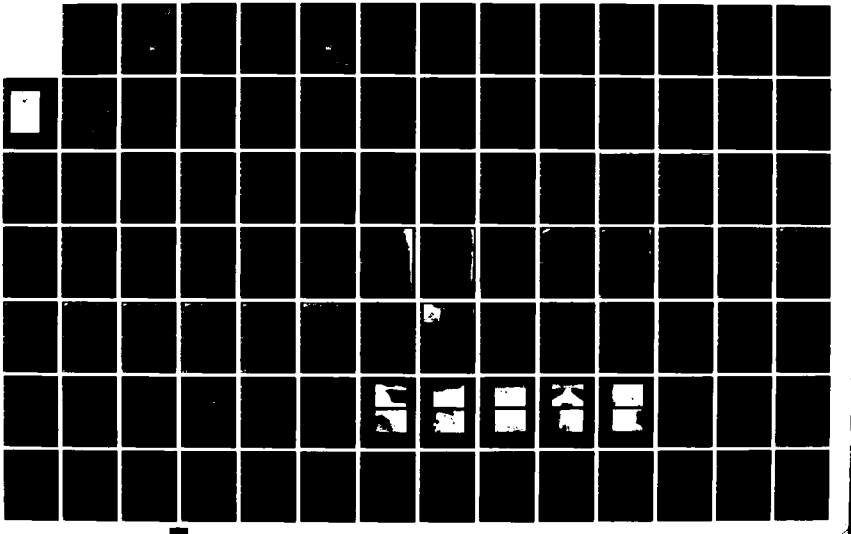
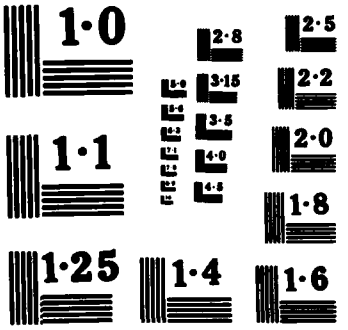
AD-A144 317 NATIONAL PROGRAM FOR INSPECTION O NON-FEDERAL DAMS 1/2
MONO POND DAM (CT 002.. (U) CORPS OF ENGINEERS WALTHAM
MA NEW ENGLAND DIV AUG 80

UNCLASSIFIED F/G 13/13 NL




1·0
1·1
1·25
2·8
3·15
3·5
4·0
4·5
2·5
2·2
2·0
1·8
1·4
1·6

THAMES RIVER BASIN

COLUMBIA, CONNECTICUT

MONO POND DAM
CT 00258

PHASE I INSPECTION REPORT
NATIONAL DAM INSPECTION PROGRAM

DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION, CORPS OF ENGINEERS
WALTHAM, MASS. 02154

AUGUST 1980

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER CT 00258	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Mono Pond Dam NATIONAL PROGRAM FOR INSPECTION OF NON-FEDERAL DAMS		5. TYPE OF REPORT & PERIOD COVERED INSPECTION REPORT 6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) U.S. ARMY CORPS OF ENGINEERS NEW ENGLAND DIVISION		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS DEPT. OF THE ARMY, CORPS OF ENGINEERS NEW ENGLAND DIVISION, NEDED 424 TRAPELO ROAD, WALTHAM, MA. 02254		12. REPORT DATE August 1980 13. NUMBER OF PAGES 65
14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office)		15. SECURITY CLASS. (of this report) UNCLASSIFIED 15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

APPROVAL FOR PUBLIC RELEASE: DISTRIBUTION UNLIMITED

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

Cover program reads: Phase I Inspection Report, National Dam Inspection Program; however, the official title of the program is: National Program for Inspection of Non-Federal Dams; use cover date for date of report.

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

DAMS, INSPECTION, DAM SAFETY,
Thames River Basin
Columbia, Connecticut

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

The project, reported to have been built in the early 1900's, consists of a concrete principal spillway, embankments to the right and left of this spillway and an emergen spillway near the right end of the dam. The dam is approximately 920 ft. in length, including the two spillway, and varies in width from 10 to 12 ft. at the top (EL 546) Based upon the visual inspection at the site and past performance, the dam appears to be in fair condition. In accordance with the Army Corps of Engineers' guidelines, Mono Pond Dam is classified as a significant hazard, small size dam.

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION, CORPS OF ENGINEERS
424 TRAPELO ROAD
WALTHAM, MASSACHUSETTS 02254

REPLY TO
ATTENTION OF:
NEDED

NOV 14 1980

Honorable Ella T. Grasso
Governor of the State of Connecticut
State Capitol
Hartford, Connecticut 06115

Dear Governor Grasso:

Inclosed is a copy of the MonoPond Dam (CT-00258) Dam Phase I Inspection Report, which was prepared under the National Program for Inspection of Non-Federal Dams. This report is presented for your use and is based upon a visual inspection, a review of the past performance and a brief hydrological study of the dam. A brief assessment is included at the beginning of the report. I have approved the report and support the findings and recommendations described in Section 7 and ask that you keep me informed of the actions taken to implement them. This follow-up action is a vitally important part of this program.

A copy of this report has been forwarded to the Department of Environmental Protection, the cooperating agency for the State of Connecticut. In addition, a copy of the report has also been furnished the owner, Mono Lake Estates, Coventry, Conn.

Copies of this report will be made available to the public, upon request, by this office under the Freedom of Information Act. In the case of this report the release date will be thirty days from the date of this letter.

I wish to take this opportunity to thank you and the Department of Environmental Protection for your cooperation in carrying out this program.

Sincerely,

WILLIAM E. HODGSON, JR.
Colonel, Corps of Engineers
Acting Division Engineer

Incl
As stated

THAMES RIVER BASIN

COLUMBIA, CONNECTICUT

MONO POND DAM
CT 00258

PHASE I INSPECTION REPORT
NATIONAL DAM INSPECTION PROGRAM

DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION, CORPS OF ENGINEERS
WALTHAM, MASS. 02154

AUGUST 1980

BRIEF ASSESSMENT

PHASE I INSPECTION REPORT

NATIONAL PROGRAM OF INSPECTION OF DAMS

Name of Dam:	MONO POND DAM
Inventory Number:	CT 00258
State Located:	CONNECTICUT
County Located:	TOLLAND
Town Located:	COLUMBIA
Stream:	TR-GIFFORDS BROOK
Owner:	MONO LAKE ESTATES
Date of Inspection:	APRIL 2, 1980
Inspection Team:	PETER M. HEYNEN, P.E.
	MIRON PETROVSKY
	MURALI ATLURU, P.E.
	JAY A. COSTELLO

The project, reported to have been built in the early 1900's, consists of a concrete principal spillway, embankments to the right and left of this spillway and an emergency spillway near the right end of the dam. The dam is approximately 920 feet in length, including the two spillways, and varies in width from 10 to 12 feet at the top (El. 546). The maximum height of the embankment is 12 feet at the principal spillway and the impoundment with pond level to the top of the dam is 640 acre-feet. The top and side slopes of the dam have a sod cover. The principal spillway is a concrete chute with wier-boards at the upstream end and the emergency spillway is an unlined channel cut into the right end of the embankment. A swale, which will overflow to the toe of the dam at approximately the same elevation as the auxiliary spillway, exists at the left end of the dam. There is no low-level outlet at the dam.

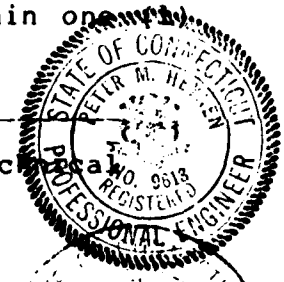
Based upon the visual inspection at the site and past performance, the dam appears to be in fair condition with items which require repair, maintenance and monitoring. These include spalling of the concrete walls at the principal spillway, seepage through the embankments, trees and brush on the embankments and in the emergency spillway, erosion of the upstream slopes, extending the embankment to fill the swale at left end of the dam, and debris and overhanging brush in the spillway discharge channels.

In accordance with the Army Corps' of Engineers' guidelines, Mono Pond Dam is classified as a significant hazard, small size dam. The test flood range to be considered is from the 100 year flood to one-half the Probable Maximum Flood (½ PMF). The test flood for Mono Pond Dam is equivalent to the ½ PMF. Peak inflow to the pond at the test flood is 1250 cubic feet per second (cfs) and the peak outflow is 760 cfs (including swale outflow of 250 cfs) with freeboard to the top of the dam of 0.7 feet. With the pool level at the top of the dam, the capacity for the principal and emergency spillways is 250 cfs and 570 cfs respectively. The total spillway capacity at the same pool level is 820 cfs, which is greater than 100% of the routed test flood outflow.

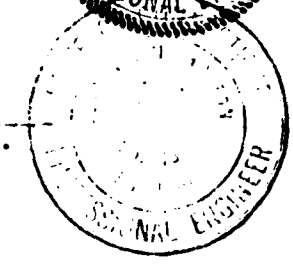
It is recommended that the owner retain the services of a registered professional engineer to analyze in more detail the existing project discharge capacity. This analysis should include the affect of a swale at the left end of the dam, a low saddle (draining to Williams Pond) at the south end of the pond and the lack of a low-level outlet. Other items of importance include inspection of the principal spillway under no flow conditions, seepage through the embankment, reconstruction of the auxiliary spillway, filling the swale to the top of the dam and removal of trees from the embankments. Recommendations should be made by the engineer and implemented by the owner.

The above recommendations and further remedial measures which are discussed in Section 7, should be instituted within one (1) year of the owners receipt of this report.

Peter M. Heynen, P.E.
Project Manager - Geotechnical
Cahn Engineers, Inc.



C. Michael Horton, P.E.
Department Head
Cahn Engineers, Inc.



This Phase I Inspection Report on Mono Pond Dam has been reviewed by the undersigned Review Board members. In our opinion, the reported findings, conclusions, and recommendations are consistent with the Recommended Guidelines for Safety Inspection of Dams, and with good engineering judgment and practice, and is hereby submitted for approval.

ARAMAST MAHTESIAN, MEMBER
Geotechnical Engineering Branch
Engineering Division

CARNEY M. TERZIAN, MEMBER
Design Branch
Engineering Division

RICHARD DIBUONO, CHAIRMAN
Water Control Branch
Engineering Division

APPROVAL RECOMMENDED:

JOE B. FRIAR
Chief, Engineering Division

PREFACE

This report is prepared under guidance contained in the Recommended Guidelines for Safety Inspection of Dams, for Phase I Investigations. Copies of these guidelines may be obtained from the Office of Chief of Engineers, Washington, D.C. 20314. The purpose of a Phase I Investigation is to identify expeditiously those dams which may pose hazards to human life or property. The assessment of the general condition of the dam is based upon available data and visual inspection. Detailed investigation, and analyses involving topographic mapping, subsurface investigations, testing, and detailed computational evaluations are beyond the scope of a Phase I Investigation; however, the investigation is intended to identify any need for such studies.

In reviewing this report, it should be realized that the reported condition of the dam is based on observations of field conditions at the time of inspection along with data available to the inspection team. In cases where the reservoir was lowered or drained prior to inspection, such action, while improving the stability and safety of the dam, removes the normal load on the structure and may obscure certain conditions which might otherwise be detectable if inspected under the normal operating environment of the structure.

It is important to note that the condition of a dam depends on numerous and constantly changing internal and external conditions, and is evolutionary in nature. It would be incorrect to assume that the present condition of the dam would necessarily represent the condition of the dam at some point in the future. Only through continued care and inspection can there be any chance that unsafe conditions will be detected.

Phase I inspections are not intended to provide detailed hydrologic and hydraulic analyses. In accordance with the established Guidelines, the Spillway Test Flood is based on the estimated "Probable Maximum Flood" for the region (greatest reasonably possible storm runoff), or fractions there of. Because of the magnitude and rarity of such a storm event, a finding that a spillway will not pass the test flood should not be interpreted as neccessarily posing a highly inadequate condition. The test flood provides a measure of relative spillway capacity and serves as an aid in determining the need for more detailed hydrologic and hydraulic studies, considering the size of the dam, its general condition and the downstream damage potential.

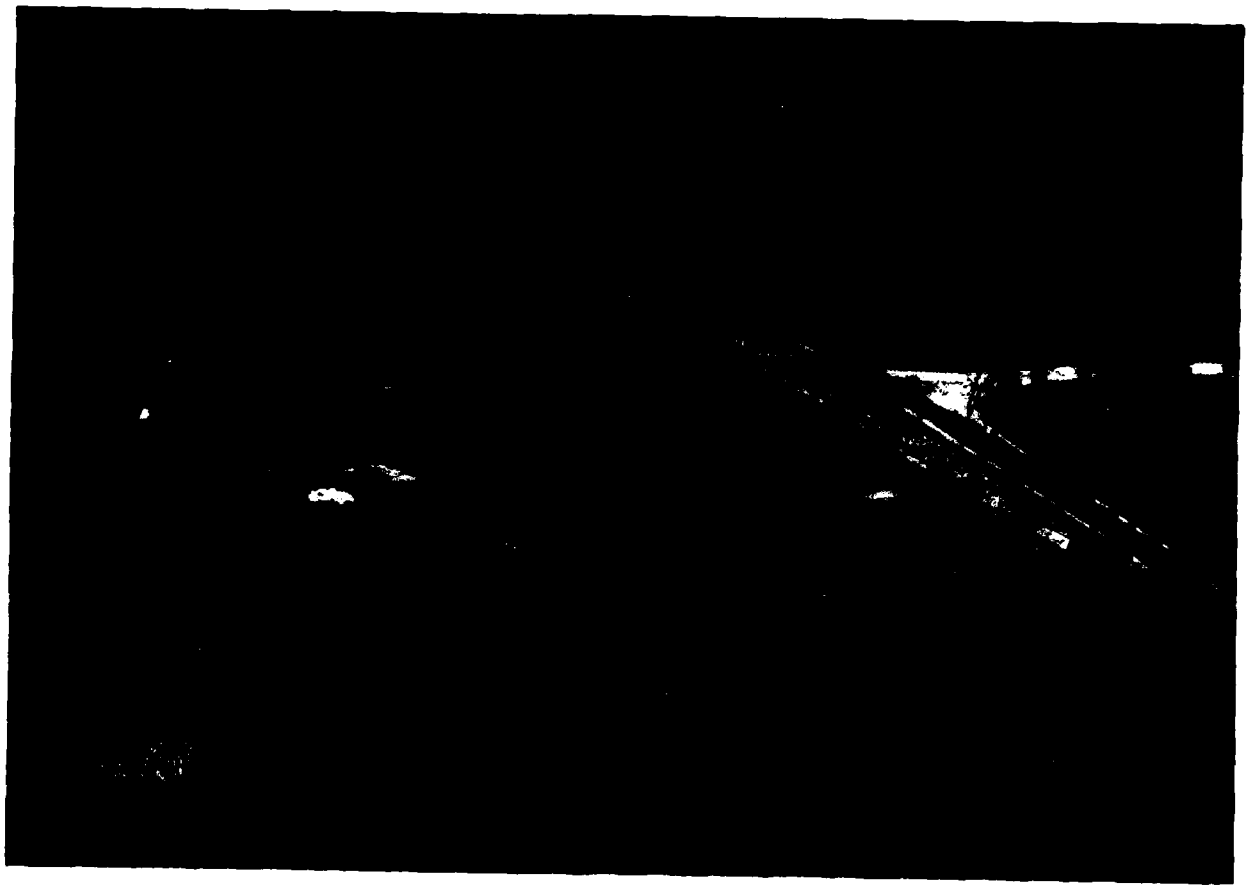
The Phase I Investigation does not include an assessment of the need for fences, gates, no-trespassing signs, repairs to existing fences and railings and other items which may be needed to minimize trespass and provide greater security for the facility and safety to the public. An evaluation of the project for compliance with OSHA rules and regulations is also excluded.

The information contained in this report is based on the limited investigation described above and is not warranted to indicate the actual condition of the dam. The integrity of the dam can only be determined by a means of a monitoring program and/or a detailed physical investigation. The accuracy of available data is assumed where not in obvious conflict with facts observable during the visual inspection.

TABLE OF CONTENTS

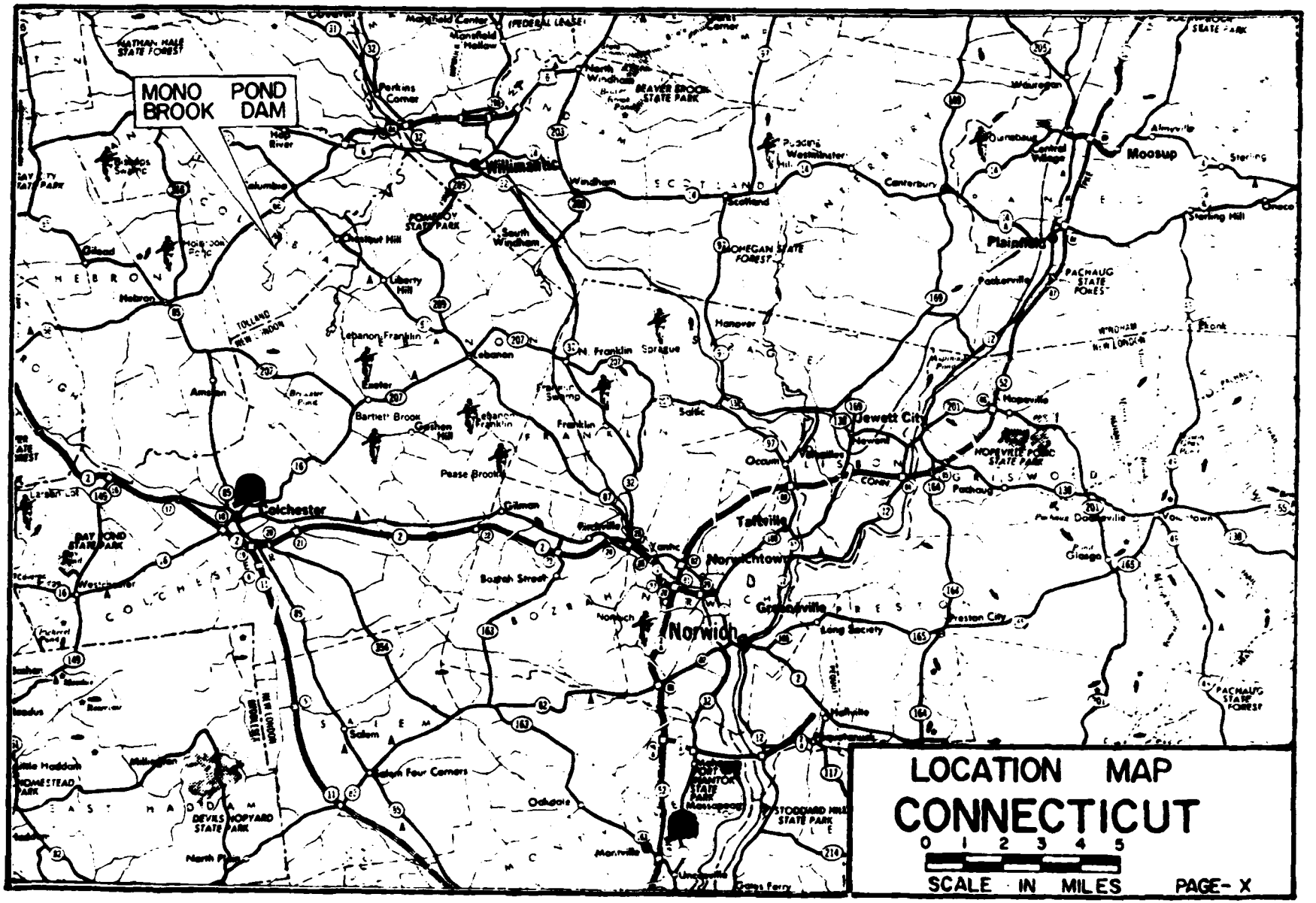
SECTION 7: ASSESSMENT, RECOMMENDATIONS & REMEDIAL MEASURES

APPENDICES



OVERVIEW PHOTO
(February, 1980)

US ARMY ENGINEER DIV. NEW ENGLAND CORPS OF ENGINEERS WALTHAM, MASS.	NATIONAL PROGRAM OF	Mono Pond Dam	Columbia	DATE Aug. 1980
CAHN ENGINEERS INC. WALLINGFORD, CONN. ENGINEER	INSPECTION OF NON-FED DAMS	TR-Giffords Brook	CONNECTICUT	CE # 27785 KD
				PAGE ix


MONO POND BROOK DAM
LOCATION MAP
CONNECTICUT
0 1 2 3 4 5
SCALE IN MILES
PAGE- X

PHASE I INSPECTION REPORT

MONO POND DAM

SECTION I - PROJECT INFORMATION

1.1 GENERAL

a. Authority - Public Law 92-367, August 8, 1972, authorized the Secretary of the Army, through the Corps of Engineers, to initiate a National Program of Dam Inspection throughout the United States. The New England Division of the Corps of Engineers has been assigned the responsibility of supervising the inspection of dams within the New England Region. Cahn Engineers, Inc. has been retained by the New England Division to inspect and report on selected dams in the State of Connecticut. Authorization and notice to proceed were issued to Cahn Engineers, Inc. under a letter of April 14, 1980 from William E. Hodgson, Jr., Colonel, Corps of Engineers. Contract No. DACW 33-80-C-0052 has been assigned by the Corps of Engineers for this work.

b. Purpose of Inspection Program - The purposes of the program are to:

1. Perform technical inspection and evaluation of non-federal dams to identify conditions requiring correction in a timely manner by non-federal interests.

2. Encourage and prepare the States to quickly initiate effective dam inspection programs for non-federal dam.

3. To update, verify and complete the National Inventory of Dams.

c. Scope of Inspection Program - The scope of this Phase I inspection report includes:

1. Gathering, reviewing and presenting all available data as can be obtained from the owners, previous owners, the state and other associated parties.

2. A field inspection of the facility detailing the visual condition of the dam, embankments and appurtenant structures.

3. Computations concerning the hydraulics and hydrology of the facility and its relationship to the calculated flood through the existing spillway.

4. An assessment of the condition of the facility and corrective measures required.

It should be noted that this report passes judgement only on those factors of safety and stability which can be determined by a visual surface examination. The inspection is to identify those visually apparent features of the dam which evidence the need for corrective action and/or further study and investigation.

1.2 DESCRIPTION OF PROJECT

a. Location - The dam is located on a tributary to Giffords Brook (Thames River Basin) in a rural area of the City of Columbia, County of Tolland, State of Connecticut. The dam is shown on the Columbia USGS Quadrangle Map having coordinates latitude N41°40.8' and longitude W72°18.7'.

b. Description of Dam and Appurtenances - The dam consists of two sections of embankment on either side of the principal spillway and an emergency spillway 250 feet from the right end of the dam. The total length of the dam is approximately 920 feet including the two spillways. The left section of embankment ranges in height from 3 feet at the left end to 5 feet at the principal spillway. The right embankment has a maximum height of 12 feet just to the right of the principal spillway. The top of the dam (elevation 546.0) varies between 10-12 feet in width and has a sod cover which has been worn by trespassing. The left section of embankment does not extend all the way to natural ground, forming a low swale at the left end of the dam which will overflow at elevation 543.5 (See sheet B-1). The upstream slopes are inclined at approximately 2.0 horizontal to 1 vertical above the waterline and have a sod and brush cover. Riprap has been placed at the waterline but there is not enough for sufficient protection, therefore the upstream slopes are eroding in several areas and are very uneven. The downstream slopes vary in inclination, but the average slope is 1.5 horizontal to 1 vertical. These slopes are also sod covered with several large trees along the toe of both embankments. There is a stone masonry retaining wall along the downstream slope of the left section of embankment. The top of this wall is approximately 3 feet below the top of the dam.

The principal spillway is a 4.7 foot deep by 7 foot wide concrete chute located between the two embankments. There are two 12.5 foot long wingwalls at the upstream end which expand the inlet to 16± feet in width at the crest. The crest of the spillway is formed by a concrete pier at the center of the chute and weir-boards across the approach channel. The weir-boards are 1.6 feet high by 8 feet long and extend from the pier to the upstream end of each wing wall (see sheet B-1). The spillway crest is at elevation 541.4 and the weir-boards have a maximum elevation of 543.0, or 3 feet below the top of the dam. The main section of the spillway slopes down at 2.5 horizontal to 1 vertical for about 12 feet, and then drops 3.5 feet vertically before passing through a 6 foot high by 10 foot wide concrete box culvert under Hunt Road to the natural streambed.

The emergency spillway is a 50 foot wide swale near the right end of the dam with an 8 foot wide grasslined channel extending along the toe of the embankment to Hunt Road (see Sheet B-1). The crest of the spillway is at elevation 543.5 and has a dumped riprap cover. There is no low-level outlet at the dam.

c. Size Classification - (SMALL) - The dam impounds 640 acre-feet of water with the lake level at the top of the dam, which at elevation 546.0, is 12+ feet above the (old) streambed. According to the Recommended Guidelines a dam with this height and storage capacity is classified as small in size.

d. Hazard Classification - (SIGNIFICANT) - The dam outlets into a tributary of Giffords Brook which flows through a new subdivision north of the pond. If the dam were breached, there is potential for loss of less than a few lives as well as economic loss. There are at least 4 houses located within 4+ feet of the streambed which would be inundated with 1.5+ feet of water upon failure of Mono Pond Dam. Damage is also expected at the culverts under Hunt Road and Pine Street.

e. Ownership - Mono Lake Estates
302 Twin Hill Drive
Coventry, Connecticut 06238
Mr. Ludger Guillemette (Pres.)
(203)569-0800

The owner previous to Mono Lake Estates was Mr. Robert Stem of Manchester, Connecticut. Mono Lake Estates purchased the dam in early 1974.

f. Operator - Owner (see ownership, above)

g. Purpose of Dam - Recreational

h. Design and Construction History - The following information is believed to be accurate based on the plans and correspondence available. The dam was built around 1900. In 1973, changes were made to the dam which included 1) excavation and repairs to a leak area along the right principal spillway wall, 2) excavation of emergency spillway, 3) regrading and raising embankment 2 feet to elevation 546.0, 4) raising concrete spillway training walls to elevation 546.0.

i. Normal Operational Procedures - There are no formal operational procedures known to exist. No low-level outlet exists at the dam. The only method available to alter the lake elevation is by removal of the weir boards, which would drop the lake to a minimum elevation of 541.4.

1.3 PERTINENT DATA

a. Drainage Area - 1.27 square miles of rolling, wooded and undeveloped terrain with some flat swampy areas around the lake.

b. Discharge at Damsite - Discharge is over the principal spillway and over the emergency spillway if the lake rises above elevation 543.5. There is also a swale at the left end of the dam which will release water along the toe of the left embankment and into a culvert under Hunt road when the lake elevation reaches 543.5+. Water may discharge to Williams Pond through a saddle at the south end of the pond. The exact elevation at which this might occur is unknown, but it is assumed to be only at high flooding conditions.

1. Outlet Works:	N/A
2. Maximum flood at damsite:	Unknown
3. Principal spillway capacity @ top of dam el. 546.0:	250 cfs (weir boards to 543.0) 360 cfs (no weir boards)
4. Principal spillway capacity @ test flood elevation 545.3:	170 cfs (weir boards to 543.0)
5. Emergency spillway capacity @ top of dam el. 546.0:	570 cfs
6. Emergency spillway capacity @ test flood el. 545.3:	340 cfs
7. Swale capacity at top of dam el. 546.0:	460 cfs
8. Swale capacity @ test flood el. 545.3:	250 cfs
9. Total spillway capacity @ top of dam el. 546.0:	820 cfs (weir boards to 543.0)
10. Total spillway capacity @ test flood el. 545.3:	510 cfs (weir boards to 543.0)
11. Total project discharge @ top of dam el. 546.0:	1280 cfs (weir boards to 543.0)
12. Total project discharge @ test flood el. 545.3:	760 cfs (weir boards to 543.0)

c. Elevations (Feet Above National Geodetic Vertical Datum).

1. Streambed at toe of dam:	534.0±
2. Bottom of Cutoff:	N/A
3. Maximum tailwater:	Unknown
4. Normal pool:	543.0
5. Full flood control pool:	N/A
6. Spillway crest (ungated):	541.4
7. Top of weir-boards:	543.0
8. Design surcharge (redesign):	544.6

9. Top of dam:	546.0
10. Test flood surcharge:	545.3
d. Reservoir (Length in feet)	
1. Normal pool with weir-boards:	6000 ft.
2. Flood control pool:	N/A
3. Spillway crest pool (no weir-boards):	5000 ft.
4. Top of Dam:	7000 ft.
5. Test flood pool:	6500 ft.
e. Storage	
1. Normal pool with weir-boards:	300 acre-ft.
2. Flood control pool:	N/A
3. Spillway crest pool (no weir-boards):	220 acre-ft.
4. Top of dam:	640 acre-ft.
5. Test flood Pool:	550 acre-ft.
f. Reservoir Surface (acres)	
1. Normal pool with weir-boards:	100 acres
2. Flood control pool:	n/A
3. Spillway crest (no weir-boards):	89 acres
4. Top of dam:	125 acres
5. Test flood pool:	120 acres
g. Dam	
1. Type:	Embankment
2. Length:	920 ft.
3. Height:	6-12 ft.
4. Top width:	10 ft.
5. Side slopes:	2 H to 1 V Upstream 1.5 H to 1V Downstream
6. Zoning:	Unknown
7. Impervious Core:	N/A
8. Cutoff:	N/A

9. Grout curtain:	N/A
10. Other:	N/A

h. Diversion and Regulatory Tunnel - N/A

i. Spillway

Principal Spillway

1. Type:	Concrete, broad-crested with weirboards
2. Length of weir:	16 ft.
3. Crest elevation:	
no weir-boards	541.4
top of weir-boards	543.0
4. Gates:	N/A
5. U/S Channel:	sloped earth and gravel
6. D/S Channel:	6'x10' concrete box culvert to natural streambed. 25' long x 7' wide x 4.7' deep concrete chute between crest and culvert, with a 3.5 foot vertical drop 15' from crest.
7. General:	N/A

Emergency Spillway

1. Type:	unlined earth channel
2. Length of weir:	50 ft.
3. Crest elevation:	543.5
4. Gates:	N/A
5. U/S channel:	gravel, gently sloped
6. D/S channel:	riprap and grass lined channel around toe of dam to Hunt Rd.
7. General:	Gravel crest and dumped riprap for first 50' of channel.

j. Regulating Outlets - There are no regulating outlets at the dam.

SECTION 2: ENGINEERING DATA

2.1 DESIGN DATA

The available data consists of a drawing for proposed repairs, by John J. Mozzochi and Associates, dated November 1969 (revised March 1970), inspection reports dated 1966 through 1973 and available at the State of Connecticut Department of Environmental Protection, and specifications and hydraulic/hydrologic computations for repairs to Mono Pond Dam by John J. Mozzochi and Associates, November 1969. Also available is an environmental review team report on Mono Pond by the Eastern Connecticut Resource Conservation and Development Project, October 1975. No information is available for the original design of the dam, however information is available for the raising of the dam as stated above.

2.2 CONSTRUCTION DATA

There are several inspection reports for the repairs to the dam. These are dated between late 1971 and when final certificate of approval was given to the repairs in July, 1974. These are available at the State of Connecticut Department of Environmental Protection. The proposed plan (mentioned above in Section 2.1) includes repairs and changes to the dam. No information is available for the original construction of the dam.

2.3 OPERATION DATA

There is no information available for operational procedures at the dam. According to the owner, the dam spillway capacity has never been exceeded.

2.4 EVALUATION

a. Availability - Existing data was provided by the State of Connecticut Department of Environmental Protection. The owner made the project available for visual inspection.

b. Adequacy - The limited amount of detailed engineering data available was generally inadequate to perform an in-depth assessment of the dam, therefore, the assessment of this dam must be based on visual inspection, performance history, hydraulic computations of spillway capacity and approximate hydrologic judgements.

c. Validity - A comparison of record data and visual observations reveals no significant discrepancies in the record data.

SECTION 3: VISUAL INSPECTION

3.1 FINDINGS

a. General - Based upon the visual inspection performed on April 2, 1980, the dam appears to be in fair condition. The inspection revealed items requiring maintenance, repair and monitoring. The reservoir level at the time of the inspection was several inches over the weir-boards with water running in the spillway chute.

b. Dam

Top of Dam - The top of the dam is very irregular with a foot path along most of the dam. An eroded area with standing water was noted at the far right end of the dam. At the left end of the dam there is a swale with a minimum elevation of 543.5± This swale appears to have been formed during the raising of the embankment, which was not continued all the way to the natural slope at the left end of the dam (Photo 5). The top of the dam is grass covered and fairly clear of brush.

Upstream Slope - The upstream slope has little or no riprap at and above the waterline. This lack of riprap is causing erosion from wave action with some slight sloughing, making the upstream slope quite irregular (Photo 1). Some thin clumps of brush and small trees were also noted along the upstream slope.

Downstream Slope - The downstream slope is irregular with a grass cover, brush and large trees. The slope varies in inclination but averages about 1.5 horizontal to 1 vertical. The embankment left of the principal spillway has a stone masonry wall, the top of which is approximately 3 feet below the existing top of dam (Photo 3). Some undermining of the slope is occuring at the end of the left spillway training wall, forming a hole approximately 1.5 feet deep, 3 feet long and 1 foot wide. A seep, 2-3 gpm, was noted at the toe of the right embankment about 170 feet from the principal spillway and 10 feet from a large tree marked on Sheet B-1 (See Photo 9). Water emanating from this seep was clear. Trees are encroaching on the downstream slope of the right embankment (Photo 2).

A large swampy area was observed at the toe of the right embankment, just right of the principal spillway and in the area where the emergency spillway channel flattens out and becomes non-distinct (See Sheet B-1).

Principal Spillway - The principal spillway was resurfaced in 1973 and is in good condition except for some cracking and wet areas on the right training wall (Photo 8). The older concrete (where the spillway drops off under Hunt Road), including the 6' x 10' culvert, is spalled and cracked with areas of exposed aggregate (Photo 4 and 10). The floor of the channel has some stone and wood debris at the entrance to the culvert. A 6 inch drain pipe of unknown origin empties into the left side of the spillway (just upstream from Hunt Road) from the direction of the toe of the left embankment. Flow from this pipe was 3-4 gpm with brown deposits and staining noted around the pipe (Photo 10).

Emergency Spillway - The shape of this spillway is not clearly defined and there is no riprap protection for the crest (Photo 6 and overview). Dumped riprap starts just below the crest and extends 50+ feet into the channel. The spillway and discharge channel are overgrown with brush and weeds. The discharge channel becomes undefined along the toe of the right embankment. Water over the emergency spillway goes to a swampy area at the toe of the right embankment, and then to a culvert under Hunt Road about 120 feet east of the dam (See Sheet B-1).

c. Appurtenant Structures - No low-level outlet was observed at the dam.

d. Reservoir Area - The area surrounding the lake is wooded and undeveloped. A low saddle exists at the south end of the pond. The exact elevation of the low point is unknown, but it appears that discharge would occur to Williams Pond during high flood conditions (See Sheet D-1).

e. Downstream Channel - There is a dry-laid stone wall along the left side of the stream (just below Hunt Road) which is deteriorating. Several boulders from this wall, as well as overhanging trees and brush were noted in the stream (Photo 4).

3.2 EVALUATION

Based upon the visual inspection, the project is assessed as being in fair condition. The following features which could influence the future condition and/or stability of the dam were identified.

1. Seepage at the toe of the right embankment.
2. Wet area at toe of right embankment near principal spillway.
3. Low swale at left end of dam.
4. Lack of proper riprap on upstream slope.
5. Footpath and erosion along top of dam.
6. Trees and brush on the slopes.
7. Deterioration of and cracks in concrete spillway walls.
8. Erosion of the downstream slope at the left spillway training wall.
9. Lack of riprap and definite shape at crest of emergency spillway.
10. Lack of low-level outlet.

SECTION 4: OPERATIONAL AND MAINTENANCE PROCEDURES

4.1 OPERATIONAL PROCEDURES

a. General - There are no formal procedures for regulating flows and/or lake levels. The lake level can be altered only by removing weir-boards, as there is no low-level outlet. Lake level readings are not taken at specified intervals.

b. Description of any Formal Warning System in Effect -There is no formal warning system in effect.

4.2 MAINTENANCE PROCEDURES

a. General - No formal program for maintenance of the dam is in existance.

b. Operating Facilities - There are no operating facilities at the dam.

4.3 EVALUATION

The operation and maintenance procedures are poor with items requiring improvements. A formal program of operation and maintenance procedures should be implemented by the owner, including documentation, to provide complete records for future reference. Also, a formal warning system should be developed and implemented within the time period indicated in Section 7.1c. Remedial operation and maintenance recommendations are presented in Section 7.

SECTION 5: EVALUATION OF HYDRAULIC/HYDROLOGIC

5.1 GENERAL

The watershed is 1.27 square miles of generally undeveloped, rolling, wooded terrain located in the Thames River Basin. In addition to the principal spillway and an emergency spillway, a swale exists at the left end of the dam. Also, at the southern end of the pond, a saddle exists which could be activated under severe storm conditions. The maximum impoundment to the top of dam (El. 546.0) is estimated to be 640 Ac.Ft.

The Mono Pond Dam is classified as small in size and has a hazard classification of significant.

5.2 DESIGN DATA

No hydraulic or hydrologic design data are available for the original dam. However, some data is available from a design drawing and computations (March, 1970) concerning upgrading and raising of the dam for a design storm of 7.5 inches of rainfall for 6 hours duration (See Sheet B-1 and Appendix B).

5.3 EXPERIENCE DATA

No information on any serious problem situation arising at the dam or downstream reaches of the dam was found. The maximum previous discharge at this dam is unknown.

5.4 TEST FLOOD ANALYSIS

The test flood for this significant hazard, small size dam will be in the 100 year to half Probable Maximum Flood (½ PMF) range. Because of the existence of a sub-division of houses immediately downstream of the dam, the higher intensity of ½ PMF from this range was selected for test flood analysis. Based on the Army Corps of Engineers December 1977 Guide curve for rolling terrain, a PMF of 2000 cfs per square mile is estimated at the dam. Peak inflow at the test flood is estimated to be 1250 cfs and peak outflow is estimated to be 760 cfs with a maximum pool elevation at 545.3, or 0.7 feet of freeboard. Thus, the dam is not expected to be overtopped for a test flood peak inflow of ½ PMF. The capacity of the principal spillway with weir boards installed is estimated to be 250 cfs with pool at top of dam (El. 546.0), which is 33% of the routed test flood outflow; and 170 cfs at the test flood outflow elevation (545.3), which is equivalent to 23% of the routed test flood outflow. The capacity of the emergency spillway is estimated to be 570 cfs with pool at top of dam, which is 75% of the routed test flood outflow; and 340 cfs at the test flood outflow elevation, which is 47% of the routed test flood outflow. The outflow through the low swale in the left end of the dam is estimated to be 460 cfs with the pool at top of dam and 250 cfs at the test flood, which are 60% and 32% of the routed test flood outflow, respectively.

The combined spillway capacity is 510 cfs (67% of the routed test flood outflow) and 820 cfs (greater than 100% of the routed test flood outflow) at the test flood and top of dam elevations, respectively. Therefore, if the swale area was filled to the top of dam elevation the available storage and spillway capacities could handle the test flood outflow with a remaining freeboard of 0.3 feet to the top of the dam. All weir-boards are assumed to be in place for hydraulic computations.

5.5 DAM FAILURE ANALYSIS

Utilizing the Army Corps of Engineers April 1978 "Rule of Thumb Guidance For Estimating Downstream Dam Failure Hydrographs", the peak failure outflow due to a breach of the dam is estimated to be 6200 cfs and failure flood depth is estimated to be 5.3 feet immediately downstream of the dam. The prefailure flow in the stream is estimated to be 760 cfs, causing depths of 2.7 feet and 1.6 feet in the stream at the initial and secondary impact areas, respectivley.

The estimated peak flow rates and peak flood depth at two sections downstream of the dam resulting from a dam failure are:

Section (Ft. D/S of Dam)	Flow (CFS)	Flood Depth (FT)	Velocity (FPS)
At Dam	6200	5.3	-
500	6100	5.6	7.6
1500	5860	6.0	6.4

A flood of this magnitude could impact at least four houses and two culverts immediately downstream of the dam. At the initial impact area immediately below the dam, it is estimated the water in the streambed will rise from a depth of 2.7 feet to a depth of 5.6 feet, therefore flooding one house on Hunt Road with 1.5± feet of water. At the secondary impact area approximately 1000 feet north of Hunt Road, it is estimated that the water will rise from a depth of 1.6 feet to a depth of 6.0 feet, thereby flooding at least three houses with 1.5± feet of water. (See Sheet D-1 and Appendix D-18).

Based on the hydraulic and hydrologic analysis, a significant hazard classification has been selected for the dam.

SECTION 6: STRUCTURAL STABILITY

6.1 VISUAL OBSERVATIONS

The project is an embankment dam with a masonry wall along the downstream slope of the left embankment and is reported to have a hardpan type core, according to inspection reports during repairs to the dam in 1971. During this time the embankment was raised and an auxiliary spillway added.

It appears the embankment left of the spillway was never completely filled to the left abutment, leaving a low swale in this area. The total spillway capacity, including the principal and emergency spillways, is 820 cfs, which is greater than 100% of the test flood outflow. Therefore, if the swale area is filled in, the present outlets will still have sufficient capacity to prevent overtopping of the dam at test flood conditions.

The visual inspection revealed several items requiring maintenance and repair which may influence the stability of the dam. These include the lack of a low-level outlet for emergency draw-down, lack of proper riprap for the upstream slope of the embankment and crest of the emergency spillway, seepage at the toe of the embankment, erosion of the top of the dam and deterioration of the concrete at the principal spillway.

6.2 DESIGN AND CONSTRUCTION DATA

There is not enough design and construction data available to permit an in-depth assessment of the structural stability of the dam.

6.3 OPERATING RECORDS

The operating records available do not include any indication of dam instability since its construction, or since repairs were made in the early 1970's.

6.4 POST CONSTRUCTION CHANGES

In 1973, changes were completed at the dam which included, 1) excavation and repairs to a leak area along the right spillway wall, 2) excavation of an emergency spillway, 3) regrading and raising embankment 2 feet, 4) raise spillway training walls.

6.5 SEISMIC STABILITY

The dam is in Seismic Zone 1 and according to Recommended Guidelines, need not be evaluated for seismic stability.

SECTION 7: ASSESSMENT, RECOMMENDATIONS AND REMEDIAL MEASURES

7.1 PROJECT ASSESSMENT

a. Condition - Based upon visual inspection of the site and past performance, the project appears to be in fair condition with items which require maintenance, repair and monitoring.

Based upon the Army Corps of Engineers "Preliminary Guidance for Estimating Maximum Probable Discharges", dated March 1978, and hydraulic/hydrologic computations, peak inflow to the lake is 1250 cfs and peak outflow is 760 cfs with the test flood to elevation 545.3, 0.7 feet below the top of the dam. The spillway capacities with the pool at top of dam are 250 cfs for the principal spillway and 570 cfs for the emergency spillway. The total spillway capacity is 820 cfs, which is greater than 100% of the routed test flood outflow. The outflow through the swale at the test flood is 250 cfs.

b. Adequacy of Information - The information available is such that an assessment of the condition and stability of the project must be based solely on visual inspection, past performance and sound engineering judgement.

c. Urgency - It is recommended that the measures presented in Section 7.2 and 7.3 be implemented within 1 (one) year of the owner's receipt of this report.

7.2 RECOMMENDATIONS

It is recommended that further studies be made by a registered professional engineer qualified in dam design and inspection pertaining to the following items. Recommendations should be made by the engineer and implemented by the owner.

1. A more detailed hydraulic/hydrologic analysis to determine the adequacy of the existing project discharge capacity. This should include the affect of the swale at the left end of the dam, a low saddle (draining to Williams Pond) at the south end of the pond, and the lack of a low-level outlet.

2. Inspection of the principal spillway when no water is flowing over the weir-boards. This should include examination into the extent of possible seepage sources and possible deterioration and undermining of the concrete apron and training walls.

3. Origin and significance of flow from the 6 inch drain pipe at the left spillway training wall, seepage at the toe of the right embankment near the auxiliary spillway, and the wet area at the toe of the right embankment.

4. Filling of the swale at the end of the left embankment to prevent outflow around the left side and along the toe of the embankment during periods of high project discharge.

5. Evaluation of the necessity of construction of a new low-level outlet for a full drawdown of the pond in emergency situations.

6. Removal of large trees from the downstream slopes and toe of the dam. This should include the removal of the root system, proper backfilling, and cover replacement.

7. Development of a program for monitoring of seepage through the embankment and from the 6 inch drain at the principal spillway.

8. The emergency spillway crest and channel should be graded to the design shape and properly protected with hand-laid riprap.

9. Repair of the deteriorated concrete and sealing of the cracks should be performed at the principal spillway.

7.3 REMEDIAL MEASURES

a. Operation and Maintenance Procedures - The following measures should be undertaken by the owner within the time period indicated in Section 7.1.c, and continued on a regular basis.

1. Round-the-clock surveillance during heavy precipitation and high project discharge. The owner should develop and implement an emergency action plan as well as a downstream warning system in case of emergencies at the dam.

2. A formal program of operation and maintenance procedures should be instituted and fully documented to provide accurate records for future reference.

3. A comprehensive program of inspection by a registered professional engineer qualified in dam design and inspection should be instituted on an annual basis.

4. Eroded upstream slope of the right and left embankment should be filled with suitable material, graded, and riprap placed.

5. Any damage to the masonry wall at the downstream slope of the left embankment should be repaired.

6. All obstacles on the spillway crest, apron and channel, including logs, stones and boulders should be removed.

7. The stone wall on the left side of the downstream channel (just below Hunt Road) should be reinforced or repaired to prevent the stones from falling into the streambed.

8. The cutting of grass, brush and small trees on the crest, slopes and at the toe of the dam should be performed and continued as part of the routine maintenance procedures.

7.4 ALTERNATIVES

This study has identified no practical alternatives to the above recommendations.

APPENDIX A

INSPECTION CHECKLIST

VISUAL INSPECTION CHECK LIST
PARTY ORGANIZATION

PROJECT Mono Pond Dam

DATE: April 2, 1980

TIME: 10:30 AM - 12:50 PM

WEATHER: 50°F, Cloudy

W.S. ELEV. 513.2 U.S. _____ DN.S

PARTY:	INITIALS:	DISCIPLINE:
1. Peter M. Heyneo	PMH	Cahn Engr. - Geotech.
2. Miron Petrovsky	MP	Cahn Engr. - Geotech.
3. Murali Atluru	MA	DTC - H&H
4. Jay A. Costello	JAC	Cahn - Geotech.
5. Tim Kavanaugh	TK	Cahn - Survey
6.		

PROJECT FEATURE	INSPECTED BY	REMARKS
1. Dam Embankment	PMH, MP, MA, JAC, TK	
2. Principal Spillway	PMH, MP, MA, JAC, TK	
3. Emergency Spillway	PMH, MP, MA, JAC, TK	
4. Discharge Channel	PMH, MP, MA, JAC, TK	
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		

PE. DIC NSPECTION CHECK LIST

PROJECT Mona Pond Dam DATE April 2, 1980

PROJECT FEATURE Embankment BY PMH, MP, MA, JAS, TK

AREA EVALUATED	CONDITION
DAM EMBANKMENT	
Crest Elevation	546.0
Current Pool Elevation	543.2
Maximum Impoundment to Dat	Unknown
Surface Cracks	None visable
Pavement Condition	N/A
Movement or Settlement of	None Visable
Lateral Movement	
Vertical Alignment	Appears good
Horizontal Alignment	
Condition at Abutment and Structures	Swale at left end, erosion and standing water at right end
Indications of Movement o Items on Slopes	Some cracking of spillway walls
Trespassing on Slopes	yes
Sloughing or Erosion of S Abutments	Some minor sloughing u/s slope, erosion along left spillway wall
Rock Slope Protection-Rip	riprap missing u/s
Unusual Movement or Crack Near Toes	None observed
Unusual Embankment or Dow Seepage	Seepage at right embankment, wet area at toe near right side principal spillway
Piping or Boil	None observed
Foundation Drainage Featu	6" pipe outlets at left spillway wall - possible toedrain
Toe Drains	
Instrumentation System	N/A

PERIODIC INSPECTION CHECK LIST

PROJECT Mono Pond Dam DATE April 2, 1980

PROJECT FEATURE Principal Spillway BY PMK, MP, MA, JAC, TK

AREA EVALUATED	CONDITION
OUTLET WORKS-SPILLWAY WEIR, APPROACH AND DISCHARGE CHANNELS	
a) Approach Channel	
General Condition	Appears good
Loose Rock Overhanging Channel	None
Trees Overhanging Channel	None
Floor of Approach Channel	Gravel, gently sloping
b) Weir and Training Walls	
General Condition of Concrete	Weir, chute - fair, some cracking Culvert - poor, cracking, spalling
Rust or Staining	None observed
Spalling	Concrete walls u/s of culvert
Any Visible Reinforcing	None observed
Any Seepage or Efflorescence	Some along spillway chute
Drain Holes	N/A
c) Discharge Channel	
General Condition	Poor
Loose Rock Overhanging Channel	None
Trees Overhanging Channel	Yes
Floor of Channel	Some wood, rock debris
Other Obstructions	6'x10' culvert under Hunt Rd.

PERIODIC INSPECTION CHECK LIST

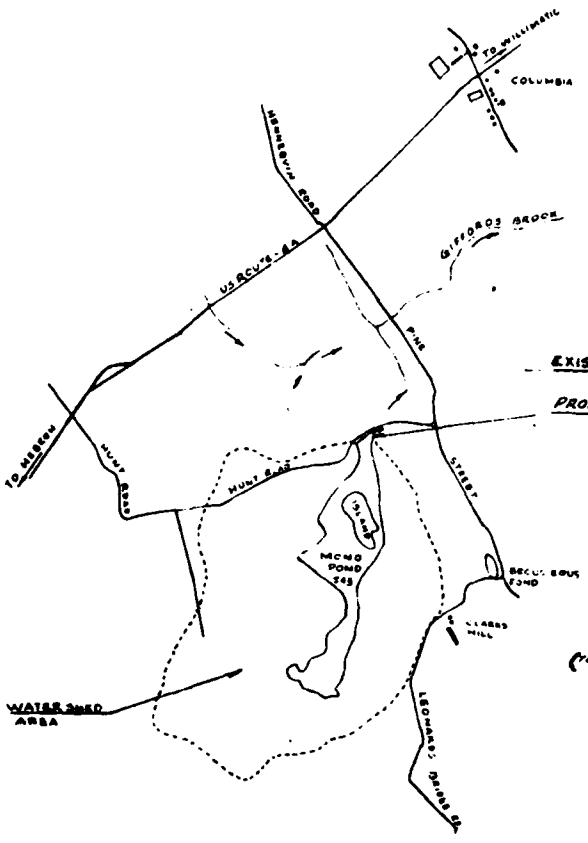
PROJECT Mono Pond Dam DATE April 2, 1980

PROJECT FEATURE Emergency Spillway BY PMH, MP, MA, JAC, TK

AREA EVALUATED		CONDITION
OUTLET WORKS-SPILLWAY WEIR, APPROACH AND DISCHARGE CHANNELS		50' wide trapezoidal unlined channel
a) Approach Channel		
General Condition		Good
Loose Rock Overhanging Channel		N/A
Trees Overhanging Channel		N/A
Floor of Approach Channel		Gravel, sloping
b) Weir and Training Walls		
General Condition of Concrete		N/A - unlined channel, poor configuration, missing riprap
Rust or Staining		N/A
Spalling		N/A
Any Visible Reinforcing		N/A
Any Seepage or Efflorescence		N/A
Drain Holes		N/A
c) Discharge Channel		8' ± wide channel to Hunt Rd. riprap first 50', then grass lined and undefined shape
General Condition		N/A
Loose Rock Overhanging Channel		yes
Trees Overhanging Channel		grass, brush, boulders
Floor of Channel		None observed
Other Obstructions		

APPENDIX B

ENGINEERING DATA AND CORRESPONDENCE



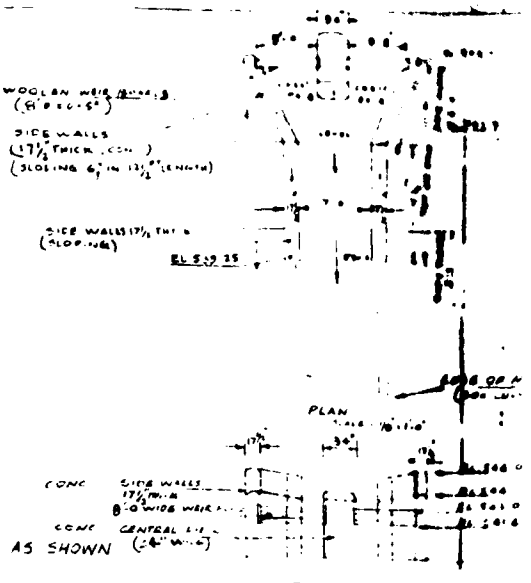
LOCATION PLAN

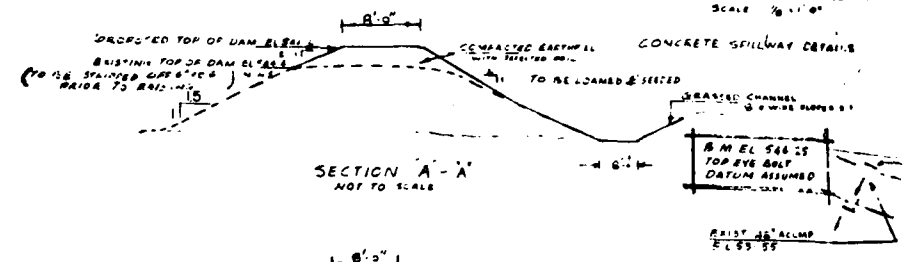
SCALE: 1" = 2000'

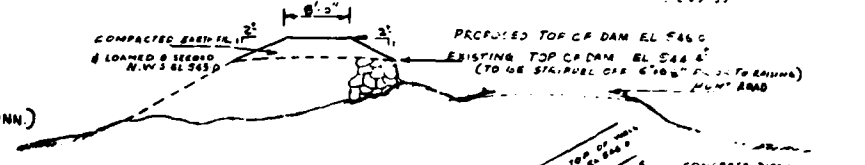
(FROM U.S.G.S. QUADRANGLE - COLUMBIA, CONN.)

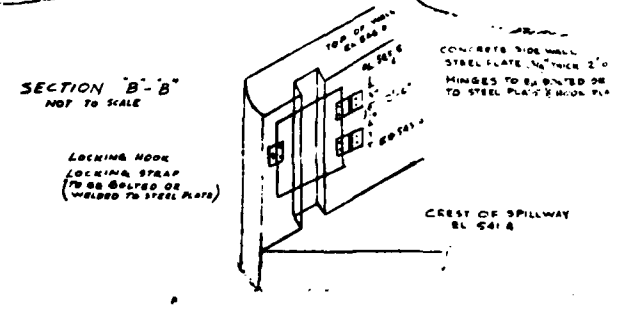
HYDRAULIC DATA

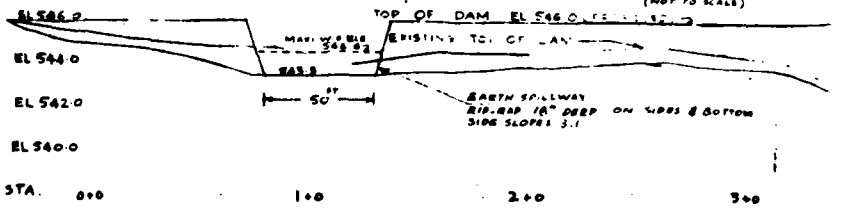
WATERSHED AREA (UP TO THE SITE)	= 850 ACRES (1.33 SQ. M.)
LAKE AREA (AT NORMAL W.S EL 543.0)	= 110 ACRES (.17 SQ. M.)
DESIGN STORM (1.5 X 100 YEARS, 6 HRS STORM)	= 7.5" RAIN FALL 6 HRS. DURATION.
DIRECT RUN-OFF	= 4.05"
NORMAL WATER SURFACE	= EL 543.0
MAXIMUM DESIGN W.S	= EL 544.6
MAXIMUM DISCHARGE :-	
CONCRETE SPILLWAY	= 100 CFS
EARTH SPILLWAY (PROPOSED 50'-0 B.W)	= 160 CFS
TOTAL	= 260 CFS
TOP OF DAM (EXISTING)	= EL 544.4
(PROPOSED)	= EL 546.0
TOP WIDTH (PROPOSED)	= 8 FT
(EXISTING)	= 10' TO 20'-2" (VARYING)
EARTH SPILLWAY (PROPOSED) :-	
BOTTOM WIDTH	= 50 FT
CREST INVERT (AT CONTROL SECTION)	= EL 543.5
SIDE SLOPES	= 3:1
RUGOSITY FACTOR - "n"	= .04





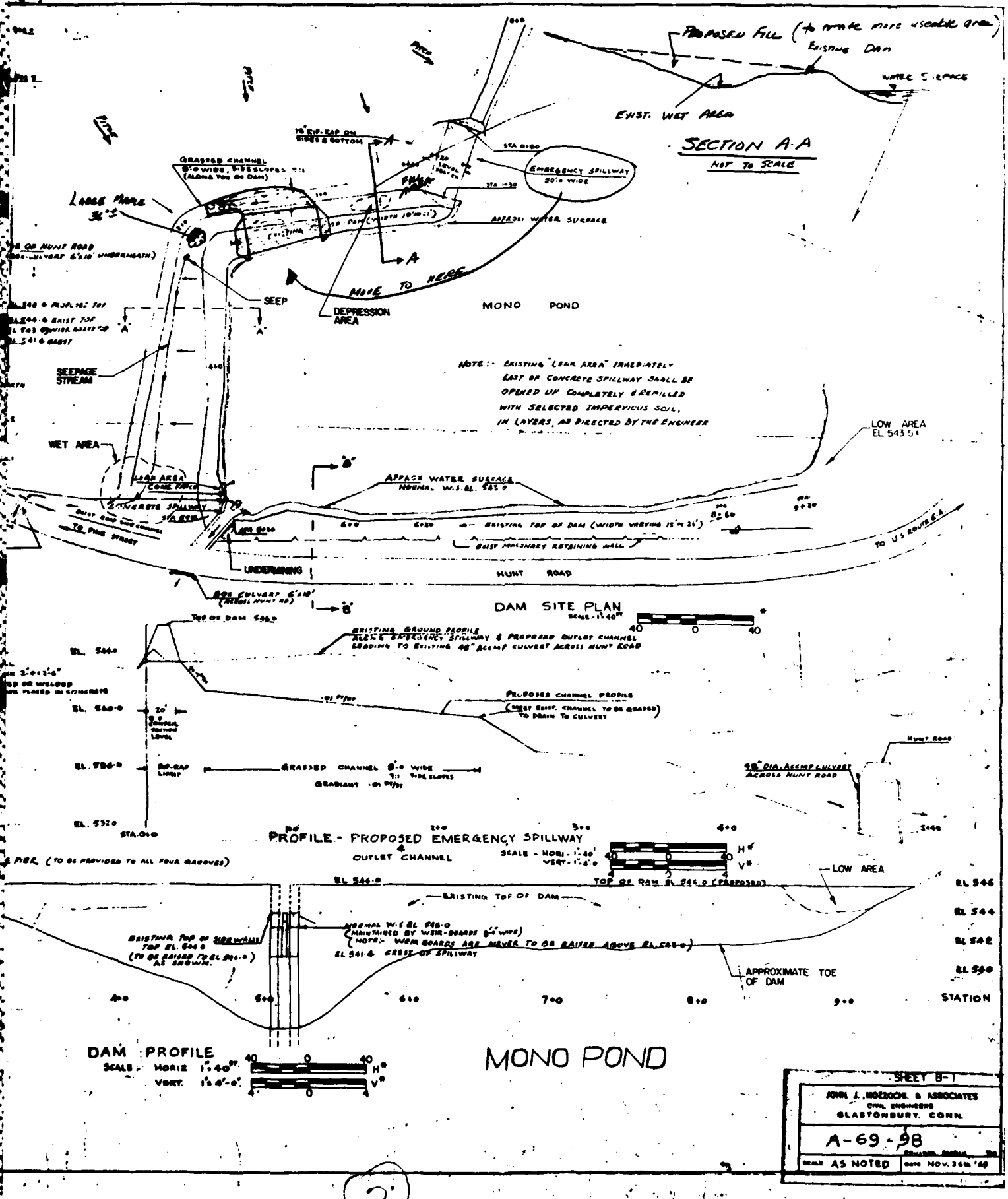






NOTES (JUNE 1980)

1. ADDITIONAL INFORMATION CONCERNING SEEPS AND LOW AREA ADDED AFTER DAM INSPECTION 4/2/80 BY CAHN ENGINEERS, INC. FOR THE ARMY CORPS OF ENGINEERS, NEW ENGLAND DIVISION.
2. ALL ELEVATIONS ARE N.G.V.D.
3. ORIGINAL PLAN REDUCED 50%. USE BAR SCALE TO RIGHT OF ORIGINAL SCALE.
4. RELOCATION AND CONFIGURATION OF SPILLWAY IS CORRECT AS SHOWN IN REVISION OF MARCH, 1970 AND CHECKED DURING CAHN ENGINEERS INSPECTION OF APRIL 2, 1980.


PROPOSED FILL (to create more useable area)
EXISTING DAM
WATER SURFACE
EXIST. WET AREA
SECTION A-A
NOT TO SCALE
10" RIP-RAP ON SIDES & BOTTOM
GRASSED CHANNEL 8'-0 WIDE, SIDE SLOPES 2:1 (ALONG TOE OF DAM)
EMERGENCY SPILLWAY 30'-0 WIDE
STA 0+00
STA 1+30
APPROX. WATER SURFACE
LOW AREA
EL 546
TOP OF HUNT ROAD
SEEP
MOVE TO HERE
DEPRESSION AREA
MONO POND
SEEPAGE STREAM
NOTE :- EXISTING "LEAK AREA" IMMEDIATELY EAST OF CONCRETE SPILLWAY SHALL BE OPENED UP COMPLETELY & REFILLED WITH SELECTED IMPERVIOUS SOIL, IN LAYERS, AS DIRECTED BY THE ENGINEER
WET AREA
LOW AREA
EL 543.5±
CONCRETE SPILLWAY
APPROX WATER SURFACE NORMAL W.S. EL. 545.0
EXIST. TOP OF DAM (WIDTH VARYING 15'± TO 25')
EXIST MASONRY RETAINING WALL
TO U.S. ROUTE 6A
UNDERMINING
HUNT ROAD
DAM SITE PLAN
SCALE - 1"=40'
EXISTING GROUND PROFILE ALONG EMERGENCY SPILLWAY & PROPOSED OUTLET CHANNEL LEADING TO EXISTING 48" ACCMP CULVERT ACROSS HUNT ROAD
TOP OF DAM 546.0
EL. 544.0
EL. 540.0
EL. 536.0
EL. 532.0
PROPOSED CHANNEL PROFILE
(MUST EXIST. CHANNEL TO BE GRADED TO DRAIN TO CULVERT)
RIP-RAP LIMIT
GRASSED CHANNEL 8'-0 WIDE
48" DIA. ACCMP CULVERT ACROSS HUNT ROAD
PROFILE - PROPOSED EMERGENCY SPILLWAY & OUTLET CHANNEL
SCALE - HORIZ. 1"=40' VERT. 1"=4'-0"
PIER (TO BE PROVIDED TO ALL FOUR GABIONS)
TOP OF DAM EL 546.0 (PROPOSED)
EXISTING TOP OF DAM
EXISTING TOP OF SIDEWALL TOP EL. 544.0 (TO BE RAISED TO EL 546.0 AS SHOWN)
NORMAL W.S. EL 545.0 (MAINTAINED BY WEIR-BOARDS 6" HIGH)
NOTE:- WEIR BOARDS ARE NEVER TO BE RAISED ABOVE EL 545.0
EL 541.6 CREST OF SPILLWAY
APPROXIMATE TOE OF DAM
EL 546
EL 544
EL 542
EL 540
STATION
DAM PROFILE
SCALE :- HORIZ. 1"=40'
VERT. 1"=4'-0"
MONO POND
SHEET B-1
JOHN J. HORZOCK & ASSOCIATES
CIVIL ENGINEERS
GLASTONBURY, CONN.
A-69-98
SCALE AS NOTED
DATE NOV. 26th '69

2

MONO POND DAM

EXISTING PLANS

"Repairs to Mono Pond Dam"
John J. Mozzochi and Associates
Glastonbury, Conn.
November 26, 1969
Revised March, 1970
1 Sheet

SUMMARY OF EXISTING DATA

SUMMARY OF EXISTING DATA CONT"D

DATE	TO	FROM	SUBJECT	PAGE
March 29, 1972	Mr. Robert Stem	Victor F. Galgowsky Superintendent Dam Maintenance	Inspection of dam	B-25
Aug. 17, 1972	William H. O'Brian, III Water Resources Commission	John Luchs Mozzochi Assoc.	Inspection of dam, recommendation to move emergency spillway	B-26
Oct. 27, 1972	Robert Stem	William H. O'Brian Water Resources Commission	Inspection of repairs and recommendations	B-27
July 17, 1973	File	Victor F. Galgowsky Supt. Dam Maintenance	Final Inspection	B-28
July 24, 1973	Victor F. Galgowski	J.O. Elmer Water and Related Resources	Survey of Dam	B-29
July 27, 1973	Mr. Robert Stem	Victor F. Galgowsky Supt. Dam Maintenance	Recommendations for repair	B-31
Dec. 3, 1973	Mr. Robert Stem	J.O Elmer Water and Related Resources	Inspection of dam and recommendations for repair	B-32
June 18, 1974	Mr. Ludger Guillemette	Victor Galgowski Supt. Dam Maintenance	Repair of emergency spillway	B-33
July 29, 1974	Mr. Ludger Guillemette	E. Zell Steaver, Drector Water and Related Resources	Approval of repairs	B-34

3

CT 258

STATE BOARD FOR THE SUPERVISION OF DAMS
INVENTORY DATA

NAME OF DAM OR POND "5a" Mono Pond

CODE NO. W 2.6 TM 39 GF 28

LOCATION OF STRUCTURE:

Town Colombia

Name of Stream Jr. Gifford's Brook

U.S.G.S. Quad. Colombia Long. 72° 18.7' Lat. 41° 40.75'

OWNER:

Address Mono Lake Estates

Telephone 18 Asylum St.
Hartford
c/o Ed MAZOTAS 1900 Rebuilt 1973

Pond Used For: Recreation? DA 1.31 SM

Dimensions of Pond: Width _____ Length _____ Area 110

Depth of Water below Spillway Level (Downstream) ± 10

Total Length of Dam 490 Length of Spillway 14' ~~4 sections~~

Height of Abutments above Spillway ± 2'

Type of Spillway Construction conc chute stoplogs

Type of Dike Construction fill

Downstream Conditions road woods

Summary of File Data _____

Remarks [illegible]

B

Mr. Pescatello - 228-3313

INTERDEPARTMENT MAIL

DATE October 17, 1966

TO File — DEPARTMENT

FROM William H. O'Brien — DEPARTMENT

SUBJECT Field Inspection on Mono Pond Dam, Columbia

On October 13, 1966 this office received a telephone call from a Mr. Samuel Pescatello, Yeomans Road, Columbia, who is the owner of a housing development, Stonehenge, on Hunt Road in Columbia. He said there was a leak in the dam at Mono Pond which is across the street from the homes he is planning and building and was questioning the safety of the dam.

On October 14, 1966, I met with Mr. Pescatello at the dam. This is an earth dam approximately 300 feet in length, an average of six feet in height with rather steep upstream and downstream faces with an average freeboard of 2 feet+ with flashboards (18") in place. In one spot there was less than one foot of freeboard. The primary spillway is of concrete with a concrete channel about 6 feet in width and 2 feet high. The downstream base of the dam was soggy with many good size trees growing near the toe. Present water level (top of 18" flashboards) was about 3 feet above Hunt Road. Downstream property damage could result from dam failure. There was a leak through or alongside the East abutment wall with a flow approximating that of a 2" or 3" pipe. There did not appear to be any immediate concern, but a letter was drawn up to have the dam inspected by John J. Mozzochi and Associates.

JOHN J. MOZZOCHI AND ASSOCIATES
CIVIL ENGINEERS

GLASTONBURY, CONN. 06033
317 HEBRON AVENUE
PHONE 633-8401

PROVIDENCE, R. I. 02903
200 DYER STREET
PHONE GASPEE 1-0420

JOHN J. MOZZOCHI
ASSOCIATES
OWEN J. WHITE
JOHN LUCHS, Jr.
EDSON L. GIOVANNINI

REPLY TO: Glastonbury

October 20, 1966

William P. Sander-Engineer-Geologist
Water Resources Commission
State Office Building
Hartford, Connecticut 06115

Re: Our File 57-73-81
Mono Pond
Columbia

Dear Mr. Sander:

In accordance with your instructions dated October 17, 1966, I made an inspection of the referenced dam on October 20, 1966.

This pond has a watershed of about 1.3 sq. miles and has a water surface area of about 0.2 sq. mile or 113 acres. The water level is controlled by two sets of removable boards, each six foot (6') long with a total height of 30 inches across the main concrete spillway which is substantially a flume discharging into a 6' wide x 10' high box culvert under Hunt Road. An earthen dike about 3' high extends about 500' along the north side of the pond adjacent to Hunt Road and another earthen dike, varying in height from 2' to 12' extends about 200' on the easterly side of the pond. A small depression about 6' wide at the southerly end of the easterly dike acts as an emergency spillway. The dikes have only about 18" of freeboard above the emergency spillway flow line.

The leak referred to in your letter, proved to be a very minor one, estimated at less than 5 gallons per minute, and occurring behind the easterly wall of the flume and about half way between the spillway and the box culvert. It appeared probable that this leak could be occurring through the wall forming the flume as well as through some porous area of the easterly dike.

I met Mr. Sam Pescetello, the owner of the property on the downstream land, who had initiated the complaint about the leak to the Selectmen of Columbia. His purpose in raising the matter with the Selectmen was combined with an attempt to get them to eliminate another water course which crosses his property about 200 feet east of the dam. I pointed out to him that due to the profile of Hunt Road, with a low point occurring at the adjacent water course, he could not hope to change the existing condition. He then agreed that the leak was a minor one and could not be considered as any threat to the safety of the dam.

My recommendation is that the owner be instructed to remove all trees from both dikes and the noted leak be watched for any increase in discharge.

Very truly yours,

John J. Mozzochi and Associates
Civil Engineers

JJM:hk

JOHN J. MOZZOCHI AND ASSOCIATES
CIVIL ENGINEERS

GLASTONBURY, CONN. 06033
817 HEBRON AVENUE
PHONE 633-8401

PROVIDENCE, R. I. 02903
300 DYER STREET
PHONE GASPEE 1-0420

JOHN J. MOZZOCHI
ASSOCIATES
OWEN J. WHITE
JOHN LUCHS, Jr.
ECTOR L. GIOVANNINI

March 14, 1967

REPLY TO: Glastonbury

William P. Sander-Engineer - Geologist
Water Resources Commission
State Office Building
Hartford, Connecticut 06115

Re: Our File 57-73-81
Mono Pond
Columbia

Dear Mr. Sander:

To summarize the review that we have made of the referenced dam, the following actions were taken:

In response to your 2nd call of January 25, 1967, concerning the leak behind the easterly wall of the flume at the referenced dam, an inspection visit was made by Mr. John Luchs of this office on January 27, 1967. At that time, Mr. Luchs noticed that there were some minor silt deposits but that the water coming from the leak was running clean. Mr. Luchs estimated the flow to be approximately 5 ± g.p.m., which is about the same flow as observed at the time of my inspection on October 20, 1966.

On February 1, 1967, Mr. Leonard Warburton of this office, visited the referenced pond and attempted to determine the origin of the leak by means of a dye test. Dye was placed on the upstream face of the dike extending from the spillway 25 ± feet east along the easterly dike. No traces of this dye were found in the water coming from the leak. Therefore, it was decided that the leak originated in the spillway section and not through the embankment.

Again I must reiterate that the leak does not appear to present any danger to the dike embankment nor the concrete spillway.

If you have any further questions, please call me.

Very truly yours,

John J. Mozzochi and Associates
Civil Engineers

JJM:hk

FORM PUB STO 201

INTERDEPARTMENT MAIL

DATE: April 15, 1969

TO: File

DEPARTMENT:

FROM: William H. O'Brien III

DEPARTMENT:

SUBJECT: Mono Pond Dam - Columbia

On April 8, 1969, the undersigned inspected the subject dam.

The leak referred to in Mr. Joseph Szegda's letter of April 1, 1969 is the same one referred to in my memo of October 17, 1966 and John Mozzochi's reports of October 26, 1966 and March 14, 1967. This leak was running clear and was estimated to be less than 5 ga./min. which shows no appreciable increase (if any) in flow since the October 14, 1966 inspection.

Some fines were in evidence below the leak and it was observed that at least some if not most of the leakage was flowing through the dam adjacent to the spillway rather than through the wall forming the flume as postulated in the October 26, 1966 report by Mozzochi. The leak is emerging on the downstream slope just east of the spillway and about 2 feet below the water level of the pond. Enough material had been carried from the dam to undermine the grassed top of the dam to a depth of about a foot. Tree roots were supporting the sod giving a sound surface appearance.

Although this leak did not appear to present any cause for immediate concern, it should be stopped to prevent probable gradual deterioration of the structure and possible failure. Also, all trees near the dike on both sides of the spillway for 100 feet ± each side should be cut down and removed.

William H. O'Brien III

Civil Engineer

WHOIII:vhb

STATE OF CONNECTICUT

WATER RESOURCES COMMISSION

STATE OFFICE BUILDING ● HARTFORD, CONNECTICUT 06115

August 21, 1969

Mr. Robert Stem, President
Robert Stem Associates, Inc.
173 Oak Street
Manchester, Connecticut

Re: Mono Pond Dam, Columbia

Dear Mr. Stem:

According to the records in this office, you are the owners of the subject dam in Columbia.

Section 25-110 of the 1958 Revision of the General Statutes places under the jurisdiction of this Commission, all dams, "---which by breaking away or otherwise, might endanger life or property---". The Commission finds that the failure of this dam would endanger life or property.

In accordance with Section 25-111 of the 1963 Supplement to the General Statutes, this dam has been inspected and was found to be in an unsafe condition. The statute states in part: "If after any inspection described herein, the Commission finds any such structure to be in an unsafe condition, it shall order the person, firm or corporation owning or having control thereof to place it in a safe condition or to remove it, and shall fix the time within which such order shall be carried out."

FINDING

Based on the engineer's report covering the inspection of this dam, the Water Resources Commission finds the structure to be in an unsafe condition. It also finds that certain repairs or alterations are necessary to place the structure in a safe condition.

The repairs or alterations to be made should include but are not necessarily limited to the following items:

1. Stop the leak through the embankment immediately east of the spillway.

2. Remove all trees from the earth embankments, and adjacent thereto.

3. Determine the capacity of the spillway and its adequacy for all conditions. If larger capacity is required, the plans should provide for this.

ORDER

In accordance with Section 25-111 of the 1963 Supplement to the General Statutes, you are hereby ordered to make the repairs and modifications necessary to place the structure in a safe category or to remove the structure.

Any repairs or modifications to the structure, or its removal shall be carried out in accordance with plans and specifications prepared by an engineer registered in the State of Connecticut and bearing his certification and seal. Such plans shall be submitted to this Commission for approval and for the issuance of a Permit prior to any construction or demolition work in accordance with Section 25-112 of the General Statutes.

The Commission shall be notified in writing wtihin two weeks what steps you plan to take to repair or remove the structure. Plans should be submitted for the repair or removal of this dam by October 24, 1969, and repair or removal accomplished by July 30, 1970.

Very truly yours,

John J. Curry
Director

JJC/o/tm

Certified Mail
Return Receipt Requested

SPECIFICATIONS

FOR

REPAIRS TO MONO POND DAM

COLUMBIA, CONNECTICUT

PREPARED

BY

JOHN J. MOZZOCHI AND ASSOCIATES

GLASTONBURY - PROVIDENCE
CONNECTICUT RHODE ISLAND

NOVEMBER 1969

SCOPE OF WORK

The work required to repair the existing dam shall consist of the following:

1. Excavate and Repairs to the "Leak Area" portion of the embankment.
2. Excavation of the Emergency Spillway
3. Raise embankment about 2 feet to Elevation 546.0
4. Raise concrete spillway side walls to Elevation 546.0

REPARING "LEAK AREA"

The existing "Leak Area" appears to be immediately east of the concrete spillway in the embankment. The saturated and unsuitable material found in this area, shall be excavated to the adjacent pond ground level and removed from the site. The excavated leak area shall then be backfilled with selected impervious material. Placement of this material shall be in uniform layers and compacted as directed by the Engineer. The upstream slope shall be protected with riprap or cobbles as directed. Coffer dams shall be constructed on the upstream side of the "leak area" to allow the repair work to be done "in the dry".

EXCAVATION OF EMERGENCY SPILLWAY

The excavation for the emergency spillway shall be in accordance with the dimensions and details as shown on the plans. Selected soil, that is suitable, may be utilized for raising the existing embankment. Unsuitable material from the excavation shall be disposed of by the Contractor at his expense.

RAISING THE EMBANKMENT

The embankment of the dam on the east and west side of the concrete spillway shall be raised about 2 feet to elevation 546.0 as shown on the plans. Prior to placing fill, the top of existing dam shall be cleared and grubbed of trees, stumps, brush, rubbish and all objectionable material within the limits of fill. The Contractor shall then strip and remove a minimum of 6" to 8" of vegetation, as directed by the Engineer.

Fill material for raising the embankment shall be suitable selected soil and may be available from the excavation of the emergency spillway, as directed by the Engineer. There is no guaranty that a sufficient quantity of suitable material is available from the emergency spillway excavation to complete the embankment. Any shortage of suitable material shall be made available by the Contractor from a suitable borrow bank, at his expense.

Fill shall be placed in horizontal layers of not more than 9" before compaction. Each layer shall be compacted to 95% of optimum density as achieved by ASSHO Method T-180-57-D before placing the next layer. Compaction shall be accomplished with such equipment as is necessary to avoid weaving and/or rutting of the underlying fill. Upon satisfactory completion of the fill, the area shall be covered with 6" of loam and then seeded.

RAISING CONCRETE SPILLWAY SIDE WALLS

The concrete side walls on both sides of the existing spillway shall be raised to elevation 546.0. Prior to adding new concrete, the existing concrete surface shall be prepared as follows:

1. Roughen concrete surface sufficiently to expose all of the course aggregate, for proper bonding, by sand-blasting or mechanical scarification.

2. Acid etched with one part commercial muriatic acid to 3 or 4 parts of water, followed by thorough rinsing and drying.

3. Apply coating of H-F EPOXY-WELD as directed by the Engineer and/or the manufacturer's representative. Epoxy work shall conform to the attached manufacturer's specifications.

The new concrete to be added shall conform to the State of Connecticut, State Highway Department "Standard Specifications for Roads, Bridges and Incidental Construction" Form 810, 1969, Section M.03.01 Class "C" Portland Cement Concrete and as directed by the Engineer.

FORM D-4

STATE OF CONNECTICUT
WATER RESOURCES COMMISSION
State Office Building
Hartford, Connecticut

STATE WATER RESOURCES COMMISSION
RECEIVED
JAN 13 1970

ANSWERED
REFERRED
FILED

APPLICATION FOR CONSTRUCTION PERMIT FOR DAM

Owner Robert Stem

Date November 26, 1969

P.O. Address 173 Oak Street

Manchester, Connecticut

Tel. No. 643-6278

Location of Structure:

Town Columbia

Shown on USGS Quadrangle Columbia-Conn.

Name of Stream Gifford Brook

at 10 inches south of Lat. 41°37'30" north
and 8.5 inches east of Long. 72°15' west

Directions for reaching site from nearest village or route intersection:
(see sketch on reverse side)

(See Attached Plan for Details)

This is an application for: (New Construction) (Alteration) x (Repair) x (Removal)
(check one or more of above)

This pond is to be used for: Recreation

Dimensions of Pond: width 1000± Feet length 6000± feet area 110 Acres

Maximum depth of water immediately above dam:

Total length of dam: 920± Feet

Length of spillway: Principal Spillway-16' Tapering to 7' - Emergency Spillway-50' Wide

Height of abutments above spillway: (Proposed - 4.6feet) (Existing - 2.6 Feet)

Type of spillway construction: Principal Spillway-Concrete - Emergency Spillway-Vegetated

Type of dike construction: Compacted Earth Fill

Spillway section will be set on: (Bedrock) (Gravel) (Clay) (Till) x (Existing)
(check one of above)

Remarks: Alteration & repair work consists of (1) Repair of leak area of Embankment (2) Excavation of Emergency Spillway, (3) Raising of Embankment 2'± , (4) Raising of Concrete Spillway sidewalls 2'-0

Signed: Robert Stem
(owner)

Name of Engineer, if any [illegible]

Note: ~~Show details of construction on reverse side~~ See Attached Plan

B-14

January 26, 1970

Mr. John Luchs, Jr.
John J. Mozzochi & Associates
Consulting Engineers
217 Hebron Avenue
Glastonbury, Connecticut

Subject: Mono Pond Dam

Dear John:

We have reviewed the plans submitted for the repair of the subject dam and have the following comments:

1. We would like a profile thru the emergency spillway which shows existing and final grades and the height of the embankment at this point.

2. Our calculations indicate that the capacity of the emergency spillway with a stage of one foot above crest level would be approximately 160 CFS.

3. It appears that the emergency spillway will be cut into the fill of the dam and if so, should be protected with rip-rap or another more durable surface.

4. The Soil Conservation Service Engineer Field Manual states that when the bottom width of the spillway is more than 35 times the depth, there may be a problem of meandering flow and accumulated debris.

5. It appears that additional flashboards could be added to raise the normal water level. There should be some positive means to prevent this, and perhaps a note on the plan stating that flashboards are not to be raised above this level.

6. Plans should be signed and dated.

When we have received your comments or revised plans we will again review this application.

Very truly yours,

William H. O'Brien
Civil Engineer

WHO:jad
cc: Robert Stem

69-98.
MONO-POND
Feb 1970

MONO-POND :-

1. EMERGENCY SPILLWAY POSITION IS SHIFTED BACK SOUTHERNLY TO PROVIDE THE SAME IN PARTIAL CUT. OUTLET CHANNEL ALONG THE TOE OF DAM IS ALSO PROVIDED. DOWN-STREAM SLOPES OF THE DAM WILL BE FLATTENED, EXTENDING UP TO CHANNEL.
PROFILE THROUGH SPILLWAY & OUTLET CHANNEL, SHOWING EXISTING AND PROPOSED GRADES IS SHOWN ON PLAN
2. SPILLWAY CAPACITY CALCULATIONS ARE CHECKED AND REVISED NOW
3. 18" HAND PACKED RIP-RAP FOR BOTTOM WIDTH & SIDES OF SPILLWAY IS PROVIDED NOW.
4. REDUCTION IN EMERGENCY SPILLWAY WIDTH FROM 50'-0 TO 40'-0 OR LESS WILL RAISE THE MAXI. W.S.EL, REDUCING THE FREE-BOARD PROVIDED, WHICH IS ABOUT 1.5 FT AT PRESENT. RAISING OF DAM FURTHER ABOVE EL 546.0 ALSO SEEMS NOT PRACTICAL

S.C.S. Tech. Release No-2 "EARTH SPILLWAYS" suggests,

"EARTH SPILLWAYS SHOULD BE MADE AS WIDE AS ECONOMICS & TOPOGRAPHY OF THE SITE WILL PERMIT GENERALLY SPEAKING, FOR A GIVEN MAXIMUM DESIGN FLOOD, AN INCREASE IN WIDTH OF THE EARTH SPILLWAY WILL PERMIT A REDUCTION IN THE HEIGHT OF THE EARTH DAM EMBANKMENT AND PROVIDE A GREATER RESERVE CAPACITY OF THE EARTH SPILLWAY".

HENCE SPILLWAY WIDTH IS MAINTAINED 50'-0 TO PROVIDE MINIMUM FREE BOARD OF 1.5 FT

PROVIDING RIP-RAP TO THE EMERGENCY SPILLWAY PORTION :-

RIP-RAP SHALL CONSIST OF HEAVY STONES TO PROTECT FROM SCOURS & WASHING OF EMERGENCY SPILLWAY SIDES & BOTTOM. IT SHALL BE PLACED AS SHOWN ON PLAN & AS DIRECTED BY THE ENGINEER.

THE STONE SHALL CONFORM TO THE STATE OF CONNECTICUT, STATE HIGHWAY DEPARTMENT, "STANDARD SPECIFICATIONS FOR ROADS, BRIDGES AND INCIDENTIAL CONSTRUCTION" FORM 810, 1969 SECTION M.12.02 "MATERIAL FOR RIP-RAP" AND AS DIRECTED BY THE ENGINEER

THE RIP-RAP SHALL BE PLACED BY HAND ON THE PREPARED SURFACES AND TO THE DEPTH SPECIFIED. IT SHALL BE SECURELY BEDDED WITH THE LARGER ROCKS FIRMLY IN CONTACT ONE TO ANOTHER. SPACES BETWEEN THE LARGER ROCKS SHALL BE FILLED WITH SMALLER ROCKS AND SPALLS. SMALLER ROCKS SHALL NOT BE GROUPED AS A SUBSTITUTE FOR LARGER ROCKS FLAT SLAB ROCK SHALL BE LAID ON EDGE.

5. LOCKING ARRANGEMENTS FOR GROOVES IN THE SIDE WALLS OF CONCRETE SPILLWAY ARE PROVIDED NOW as shown in plan. THIS WILL PREVENT ADDITION OF EXTRA WEIR-BOARDS ABOVE EL. 543.0

6. PLAN IS SIGNED AND DATED XLOW.

FEB 3rd 1970
69-98

MONO POND DAM

EARTH SPILLWAY (EMERGENCY)

LET THE SPILLWAY WIDTH BE 40'-0
WITH 20' Level section

q	dx	Q 40 FEET CFS	SOIL CONS.	ELEVATION
1	0.6	40	50	544.1
2.6	1.0	105	130	544.5
5.8	1.5	230	290	545.0
10	2.0	400	500	545.5
21.2	3.0	850	1060	546.5

CONCRETE SPILLWAY

CREST - 543.0.

$Q = CLH^{3/2}$. $L = 2 \times 8 = 16^{FT}$.

$= 3.1 \times 16 \times H^{3/2}$

Q	H	$H^{3/2}$	ELE CREST S
17.5	0.5	.3536	543.5
57.0	1.1	1.1537	544.1
91	1.5	1.837	544.5
140	2.0	2.828	545.0
196	2.5	3.953	545.5
257	3.0	5.196	546.0
325	3.5	6.548	546.5

TOTAL DISCHARGE

EL	CONCRETE SPILLWAY CFS	EARTH SPILLWAY CFS		TOTAL CFS	
543.0	0	0	0	0	0
543.5	17.5	0	0	17.5	17.5
544.1	57.0	40	50	97.0	107.0
544.5	91.0	105	130	196.0	221.0
545.0	140.0	230	290	370.0	430.0
545.5	196.0	400	500	596.0	696.0
546.5	325.0	850	1060	1175.0	1385.0

E.S. DESIGN HYDROGRAPH

1 DAY CUSEC = 2.0 AC. FT

½ Hr. CUSEC = 2.0 × 1/48

= 1/24 AC. FT

Time in Hrs.	Q	Mean Q	INFLOW Quty during the period
0	0		
.50	40	20	.83
1.0	480	260	11
1.50	1160	820	34.2 ✓ ✓
2.0	1170	1165	48.5 ✓ ✓
2.5	940	1055	44.0 ✓ ✓
3.0	750	845	35.2 ✓
3.50	650	700	29.2 ✓ ✓
4.0	500	575	24.0 ✓ ✓
4.50	450	475	19.8
5.0	400	425	17.8
5.50	250	325	13.50
6.00	100	175	7.3
6.50	40	70	2.9
7.00	20	30	1.25

FREE BOARD HYDROGRAPH ROUTING

Time IN HRS.	INFLOW CFS.	INFLOW DURING INTERVAL AC FT
0	0	
		1.5
.5	25	
		3.5
1.0	150	
		16.0
1.5	620	
		60.0
2.0	2400	
		106.0
2.5	2900	
		104.0
3.0	2300	
		80.0
3.5	1700	
		60.0
4.0	1300	
		48.0
4.5	1060	
		40.0
5.0	900	
5.50	800	34.0
6.00	530	26.0
6.50	250	16.0
7.0	120	8.0.

STORAGE

POND AREA = 110 ACRES = 0.17 SQ MILES EL 543.0

ELE	STORAGE AC.FT
543.0	0
544.0	120
545.0	240
546.0	360
546.5	430

FLOOD ROUTING RESULTS

	With 40 FT Emergency Spillway	With 50' Emergency Spillway	Combination Concrete Spillway 543.0 Emergency Spillway 543.5
Main W S EL (As per Hydrograph routing) F B EL (As per F.B Hydrograph routing)	549.8 546.1	549.6 545.45	

Main Q through Emergency Spillway

180 CFS (EL 544.8 d = 1.3)

162.0 (EL 544.6 d = 1.1)

STATE OF CONNECTICUT

WATER RESOURCES COMMISSION

STATE OFFICE BUILDING ○ HARTFORD, CONNECTICUT 06115

CONSTRUCTION PERMIT FOR DAM

September 17, 1970

Mr. Robert Stem, President
Robert Stem Associates, Inc.
173 Oak Street
Manchester, Conn.

TOWN: Columbia
RIVER: Ten Mile River
TRIBUTARY: Giffords Brook

Dear Mr. Stem:

Your application for a permit to (repair) (~~construct~~) a dam on ~~Giffords~~ Brook known as Mono Pond Dam

in the Town of Columbia in accordance with plans prepared by John Luchs, P.E. marked A-66-68 and dated Nov. 26, 1968, Revised March, 1970 has been reviewed.

The construction, in accordance with those plans, is APPROVED under the conditions which follow.

I. The Commission shall be notified as follows:

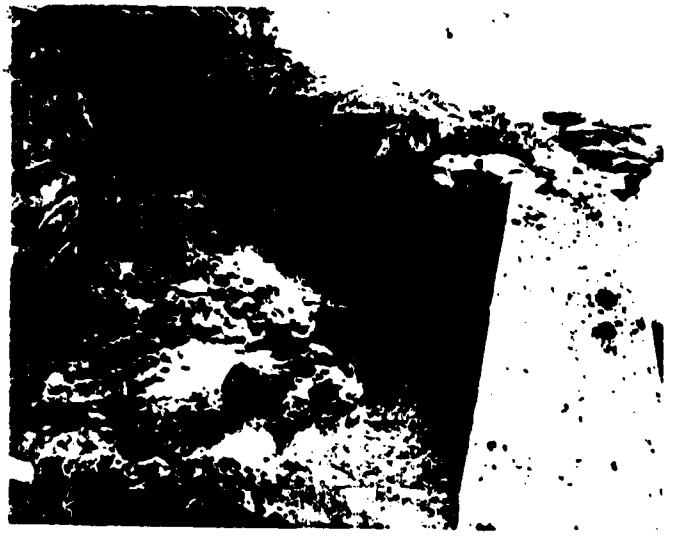
a) When construction starts
b) When construction is completed and ready for final inspection.

II. This permit with the plans and specifications must be kept at the site of the work and made available to the Commission at any time during the construction.

III. If any changes are contemplated or required, the Commission must be notified and supplementary approval obtained.

IV. If the construction authorized by this permit is not started within one year of the date of this permit and completed within two years of the date, this permit must be renewed.

V. Additional requirements -



INEERS

GLASTONBURY, CONN. 06033
217 HEBRON AVENUE
PHONE 633-9401

PROVIDENCE, R. I. 02903
[illegible] WEYBOSSET STREET
PHONE 421-0420

Reply to: Glastonbury

18, 1971

Re: Mono Pond - Columbia, Connecticut

Dear Mr. O'Brien:

This is to inform you that I was at the site on Wednesday, November 17, 1971, at which time the embankment was opened up to determine the origin of cause of the downstream "leak". Mr. Stem informed me that he had attempted to open up the embankment by hand on Friday, November 12th, but because of a heavy root-mat, he gave up and brought in a tractor mounted back hoe.

Enclosed herewith, is a snapshot of the area. The root-mat was removed and the excavation indicated serious "piping" at a shallow depth had taken place. The depth of cut was approximately 15" - 18". A hard-pan core was uncovered and was found to be intact. The owner was directed to backfill with an impervious material.

The excavation, in general, was not carried below the elevation of the lowered pond surface elevation. A check was made in the core to see if piping had occurred at a deeper depth but it was found intact.

In my opinion, this will seal off the leak and the owner can continue to take care of the other repairs required.

If you have any questions, please call.

Very truly yours,

MOZZOCHI ASSOCIATES
Civil Engineers

JLJR:cd
c.c. Robert Stem
file

March 20, 1972

Mr. Robert Stem, President
Robert Stem Association, Inc.
173 Oak Street
Manchester, Connecticut

Subject: Mono Pond Dam
Columbia

Dear Mr. Stem:

While in the Columbia area on March 10, 1972, I inspected the Mono Pond Dam on Hunt Street. A small leak immediately east of the spillway, still continues to be in evidence. Will you please have your engineer submit a statement, as soon as possible, as to the significance of this leak in respect to the safety of the dam and in relation to the recent repairs of this leak.

The trees remaining on the dike east of the spillway, and those immediately adjacent to the dike west of the spillway, should be removed.

Hope we have an early spring so you can complete your program of repairs in short order in accordance with previous agreements summarized in our letter of November 23, 1971.

Very truly yours,

Victor F. Galgowski
Supertindent of Dam Maintenance

VFG:d

cc: John Luche, Jr., Mozzochi Associates, Glastonbury

COPY

MOZZOCHI ASSOCIATES
CIVIL ENGINEERS

POST OFFICE BOX 230
GLASTONBURY, CONN 06033
217 HEBRON AVENUE
PHONE 633-9401

PROVIDENCE, R. I. 02903
100 WEYBOSSET STREET
PHONE 421-0420

PARTNERS
JOHN LUCHS, JR.
STUART J. BECKERMAN

August 17, 1972

REPLY TO Glastonbury

Mr. William H. O'Brien, III
Civil Engineers
Water Resources Commission
State Office Building
Hartford, Connecticut 06115

Re: Mono Pond Dam
Columbia, Connecticut

Dear Mr. O'Brien:

I met with the owner, Robert Stem, and his contractor on Wednesday, August 16th to discuss the proposed modifications to the subject dam. The contractor plans to commence work sometime during the week of August 21st.

While at the site, the owner requested a modification in the location of the emergency spillway as annotated in red on the enclosed print. In viewing the existing terrain and what he proposes to do, I can see nothing wrong with his proposal. I am therefore formally requesting that this modification be approved.

In response to Victor F. Galgowskis' letter of March 20th, I inspected the leak on the east side of the concrete spillway and in my opinion, it is not significant. The ground was wet but there was no running water. I instructed the owner and contractor to place porous material in this area after the concrete structure is raised 2'-0". He was also directed to remove the two trees immediately east of the said spillway. The trees adjacent to the dike, west of the spillway, are on the downstream side of a small stone retaining wall and unless Mr. Galgowski has strong feelings about this, I would recommend that they be left in place for aesthetic reasons.

If you have any questions regarding this, please call.

Very truly yours,

MOZZOCHI ASSOCIATES

John Luchs, Jr., P.E.

JLjr/ed
encl.
c.c. Robert Stem
File

October 27, 1972

Mr. Robert Stem, President
Robert Stem Associates, Inc.
173 Oak Street
Manchester, Connecticut 06040

Re: Mono Pond Dam
Columbia

Dear Mr. Stem:

On October 18, 1972, the undersigned inspected the subject dam with you and your engineer, John Luchs.

There was extensive sloughing of the embankments on the pond side which probably is because of the fact that the slopes are steeper than on the approved plans. It was agreed that further restoration of this slope be deferred until spring in the hope that the embankment may become somewhat more stabilized over the winter. The slopes are also steeper than designed on the downstream side of the embankment southeast of the spillway. This should be corrected to conform with the approved plans.

The rip-rap in the emergency spillway is to be regraded to the proper elevation and smoothed off by placing smaller stone between the larger ones to provide less resistance to the periodic flow of water over these stones. This work on the spillway is to be done immediately. It was also agreed that a black birch tree near the spillway growing on the embankment should be removed.

You are requested to notify this department when this work has been done and grass has been established on all slopes, so that a final inspection can be held. This should be completed by June 30, 1973.

Very truly yours,

William M. O'Brien, III
Civil Engineer
Water & Related Resources

WMO:ljg

cc: John Luchs

...written messages are acceptable.
Use carbon if you really need a copy. If typewritten, ignore faint lines.

TO	AGENCY	DATE
File	Water and Related Resources	17 July 1973
FROM	AGENCY	TELEPHONE
Victor F. Galgowski	Water and Related Resources	
Supt. of Dam Maintenance		
SUBJECT		
Mono Pond Dam, Columbia		

Final inspection of subject dam held this morning.

Present: Robert Stem, John Luchs, Sam Pescetello (Building Inspector) and the undersigned.

The bulk of the repairs have been ~~computed~~ COMPLEATED in a satisfactory manner.

The following must be completed before a Certificate of Approval can be issued:

1. The existing rip-rap in the emergency spillway should be regraded and hand placed in a uniform manner.

2. Rip-rap in spillway should be extended to a distance of 40' from inlet.

3. Emergency spillway ~~channel banks~~ SIDES and the bare area south of the emergency spillway should be graded and seeded.

4. The elevation of the emergency spillway will be checked by members of this office. It appears higher than called for in plans. Must be graded to specified elevation if too high.

V. Galgowski
Supt. of Dam Maintenance

VFG:ljg

SAVE TIME: *If convenient, handwrite reply to sender on this same sheet.*

SUGGESTION COMMITTEE SAY: Improve Your Own Condition; Earn Cash and Recognition: Send in a Suggestion!

Interdepartment Message

SAVE TIME: Handwritten messages are acceptable. Use carbon if you really need a copy. If typewritten, ignore faint lines.

To: Vic Galgowski

From: J. O. Elmer
W & Rel. Res.

Moro Pond

The dam was surveyed on July 24, 1973 and the following observations made.

1. The emergency spillway has not be constructed as shown on the plans. The following discrepancies were noted. (a) The point at which the top of the dike tapers into the north end of the emergency spillway is not well defined. The top of the dike should be carried at elev. 546.0 to the start of the spillway section as shown on the drawings. A well defined trapezoidal spillway should be formed with 3:1 side slopes as shown on the drawings and which is properly protected by 18" of riprap as noted on the drawings. A certain amount of fill is required on each side of the existing emergency spillway section to accomplish this.
(b) The difference in elevation between the top of dike and top of spillway should be 2.5'. As constructed the difference is approximately 2.0'. The spillway should be lowered to conform with the 2.5' shown on the drawings.

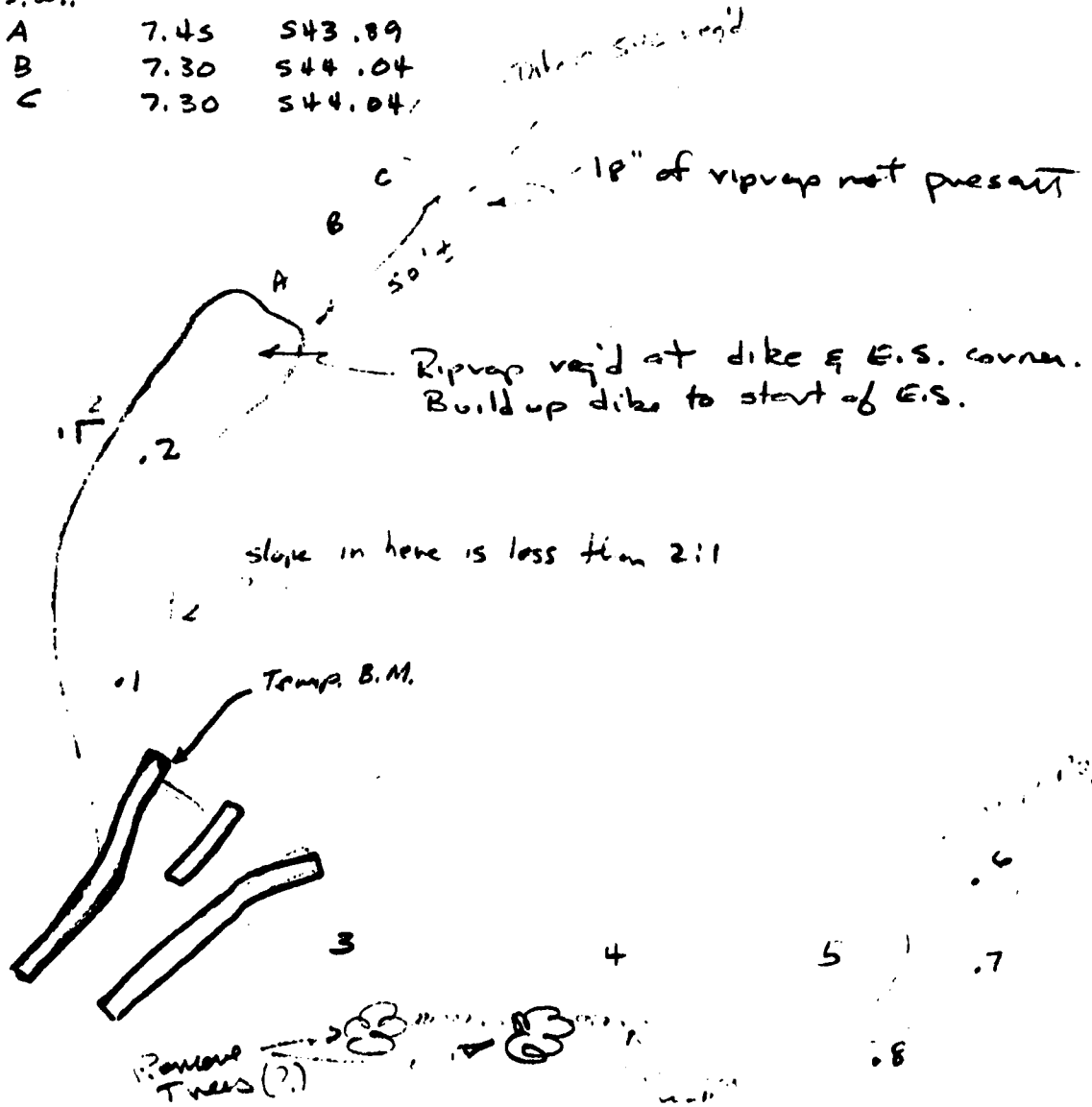
2. A [illegible] swale exists at the eastern end of [illegible] parallel to Short Rd. The elevation of this swale is [illegible] about 0.2' higher than the emergency spillway. The [illegible] fill [illegible] the point at elev. 546.0 [illegible]

SAVE TIME: [illegible] reply to sender on this same sheet

Mora Rd. | 7/24/73 | U.O.E & J.T.

Temp. B.M. = 546.0 assumed
B.S. = 5.34
H.I. = 551.34

Disc.	F.S.	Elev.
Top of Dam:		
1	5.06	546.28
2	5.00	546.34
3	5.33	546.01
4	5.03	546.31
5	7.38	543.96
7	7.00	544.34
8	7.10	544.24
S.W. Crest	10.03	541.31
Top of Ped. Bd.	8.16	543.18
Emer. S.W.:		
A	7.45	543.89
B	7.30	544.04
C	7.30	544.04



27 July 1973

Mr. Robert Stem, President
Robert Stem Associates, Inc.
173 Oak Street
Manchester, Connecticut 06040

Re: Mono Pond Dam
Columbia

Dear Mr. Stem:

Following our inspection of the subject site on July 17, 1973 and a subsequent survey on July 24 we find certain items must be completed before a Certificate of Approval can be issued for this structure.

Listed below are the areas that still require attention:

1. The emergency spillway elevation is 5" too high and should be lowered to conform with the engineering plans.

2. The dike on each side of the emergency spillway should be filled to the elevation of 546.0 as shown on the drawings. A well defined trapezoidal spillway should be formed with 3:1 slopes and be protected by 18" of rip-rap as noted on the drawings.

3. Rip-rap in the emergency spillway should be regraded and hand placed in a uniform manner and extend 40-50' from the inlet.

4. Bare areas in vicinity of the emergency spillway should be seeded.

Very truly yours,

Victor F. Galgowski
Supt. of Dam Maintenance
Water & Related Resources

VFG:lj:

COPY

COPY

STATE OF CONNECTICUT

DEPARTMENT OF ENVIRONMENTAL PROTECTION

STATE OFFICE BUILDING • HARTFORD, CONNECTICUT 06115

December 3, 1973

Mr. Robert Stem, President
Robert Stem Associates, Inc.
173 Oak Street
Manchester, Connecticut 06040

Mono Pond Dam
Columbia

Dear Mr. Stem:

On November 16, 1973, the dam at Mono Pond was inspected with respect to the plans prepared for you by John Luchs of Morrochi Associates. The work currently completed does not comply with the plans on the following points:

(1) The edges of the spillway do not have 18" of riprap as shown on the plans; the stone currently at the sides of the entrance to the spillway is too large to effectively prevent erosion. I would suggest removing the stone along the sides of the emergency spillway and placing one foot of bony gravel containing material up to 4" in size, and placing the large stone on top of this.

(2) The bottom of the entrance of the emergency spillway has no protection at all. Plans show 18" of riprap, which should be placed on a graded filter blanket as described above.

(3) The emergency spillway channel is supposed to exit through a channel running adjacent to the toe of the east dike. At present a rough channel has been cut which ends in the land adjoining the dam. If the land is to remain undeveloped, the existing situation is acceptable, but if this property is to be used for future development, the channel should be located and constructed as shown on the plan.

Sincerely,

Joseph O. Elmer
Senior Civil Engineer
Water and Related Resources

COPY

STATE OF CONNECTICUT

DEPARTMENT OF ENVIRONMENTAL PROTECTION

STATE OFFICE BUILDING • HARTFORD, CONNECTICUT 06115

COPY

June 18, 1974

Mr. Ludger Guillemette
President Mono Lake Estates
Twin Hill Drive
Coventry, Conn. 06238

Re: Mono Lake Dam, Coventry

Dear Mr. Guillemette:

It is the understanding of this office you have recently been designated president of the Mono Lakes Estates, the owners of the subject dam. I am certain you are aware of the Order issued on August 21, 1969 for needed repairs to place the structure in a safe condition. A Construction Permit for approved repairs was issued by the Water Resources Commission on September 17, 1970, and renewed on October 12, 1971.

A recent inspection of the site revealed that work in the area of the emergency spillway has not been completed. Unless we have assurance within ten days that the work will be accomplished by August 1, 1974, we will request the Attorney General to re-institute legal action to secure compliance with the Order.

We do not wish to appear unduly harsh in this instance; however, the entire matter has dragged on much too long.

Very truly yours,

Victor Galgowski
Superintendent of Dam Maintenance
Water & Related Resources
Tel. No. 566-5506

VG:mk

cc to Robert Stum

STATE OF CONNECTICUT

DEPARTMENT OF ENVIRONMENTAL PROTECTION

STATE OFFICE BUILDING HARTFORD, CONNECTICUT 06115

WATER AND RELATED RESOURCES

CERTIFICATE OF APPROVAL

29 July 1974

Mr. Ludger Guillemette, President
Mono Lake Estates
Twin Hill Drive
Coventry, Connecticut

TOWN: Columbia
RIVER: Ten Mile River
TRIBUTARY: Gifford's Brook
CODE NO: C-3

NAME AND LOCATION OF STRUCTURE: The dam is known as Mono Pond Dam and is located south of Robinson Road in the southwest section of Columbia.

DESCRIPTION OF STRUCTURE AND WORK PERFORMED:

1. Excavation and repairs to "leak area" east of spillway.
2. Construction of emergency spillway.
3. Raise embankments and spillway sidewalls 2'.

CONSTRUCTION PERMIT ISSUED UNDER DATE OF: September 17, 1970, renewed October 12, 1971

This certifies that the work and construction included in the plans submitted, for the structure described above, has been completed to the satisfaction of this department and that this structure is hereby approved in accordance with Section 25-114 of the 1971 Supplement to the General Statutes.

The owner is required by law to record this Certificate in the land records of the town or towns in which the structure is located.

E. Zell Steever, Director
Water and Related Resources

EZS:ljg

APPENDIX C

DETAIL PHOTOGRAPHS

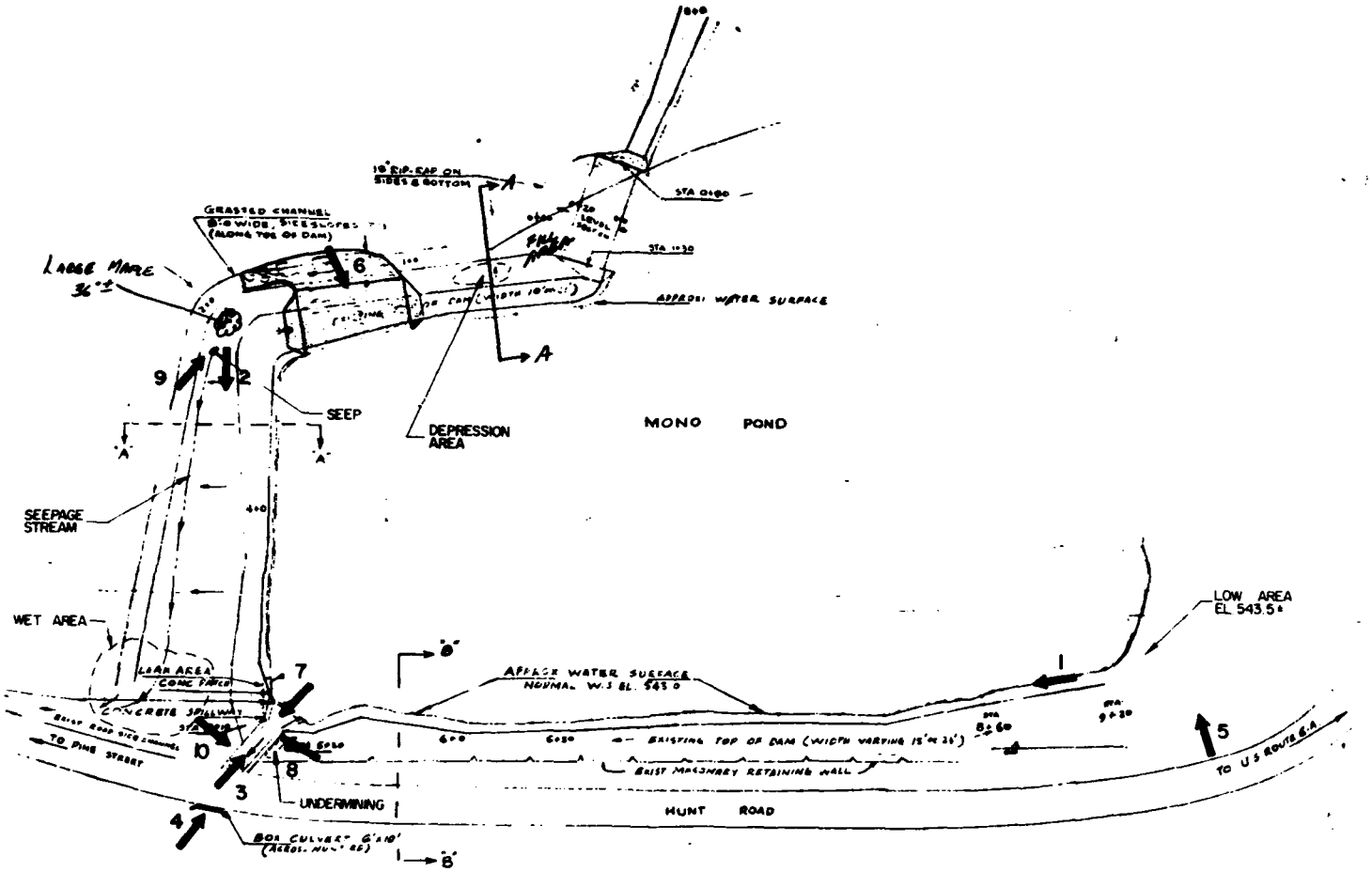


PHOTO LOCATION PLAN

MONO POND DAM

SHEET C-1

Photo 1 - Upstream slope of embankments left and right of principal spillway. (April, 1980)

Photo 2 - Downstream slope of embankment right of spillway. (April, 1980)

US ARMY ENGINEER DIV. NEW ENGLAND CORPS OF ENGINEERS WALTHAM, MASS.	NATIONAL PROGRAM OF	Mono Pond Dam TR-Giffords Brook Columbia, Connecticut
CAHN ENGINEERS INC. WALLINGFORD, CONN. ENGINEER	INSPECTION OF NON-FED. DAMS	CE# 27 785 KD DATE Aug. 1980 PAGE C-1

Photo 3 - Principal spillway and downstream slope of embankment left of spillway. Stone masonry retaining wall at toe of slope. (April, 1980)

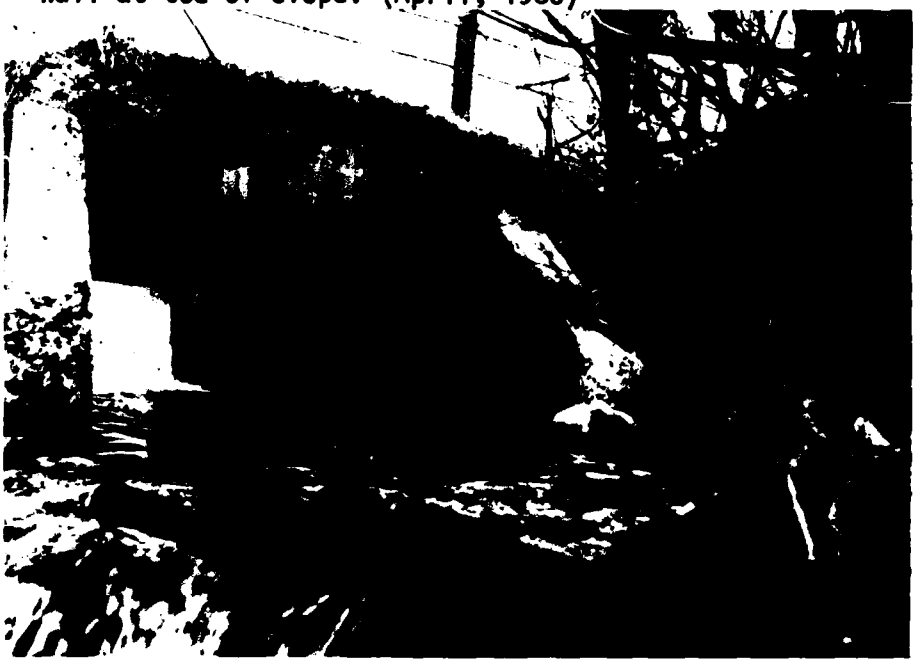


Photo 4 - Culvert for carrying spillway flows under Hunt Road. (April, 1980)

US ARMY ENGINEER DIV. NEW ENGLAND CORPS OF ENGINEERS WALTHAM, MASS.	NATIONAL PROGRAM OF	Mono Pond Dam TR-Giffords Brook Columbia, Connecticut
CAHN ENGINEERS INC. WALLINGFORD, CONN. ENGINEER	INSPECTION OF NON-FED. DAMS	CE# 27 785 KD DATE Aug. 1980 PAGE C-2

Photo 5 - Low swale at left end of embankment left of principal spillway. (April, 1980)

Photo 6 - Auxiliary spillway from discharge channel. Embankment left of principal spillway in background. (April, 1980).

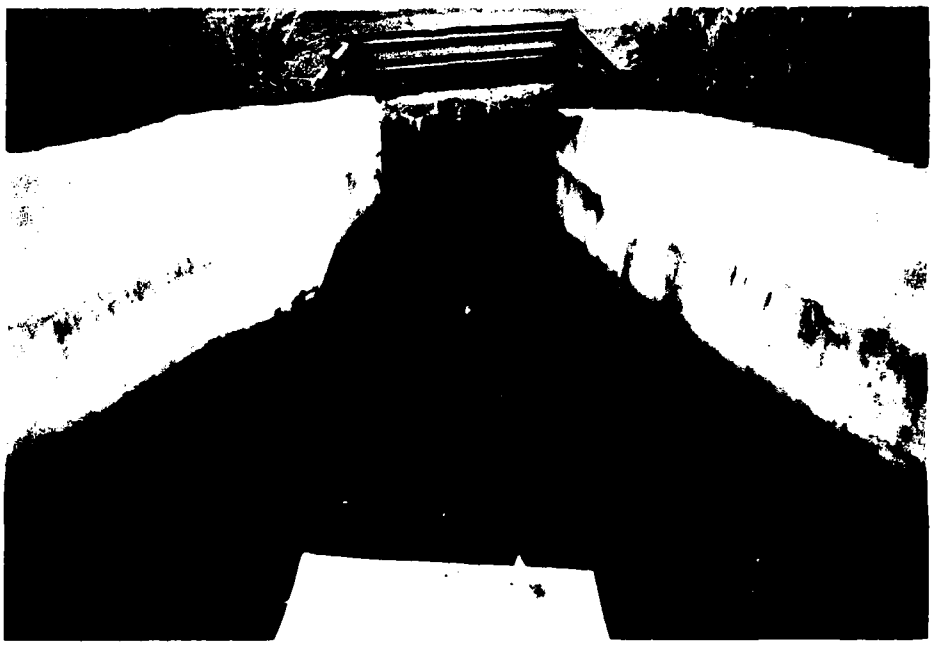


Photo 7 - Principal spillway from upstream (July, 1980).

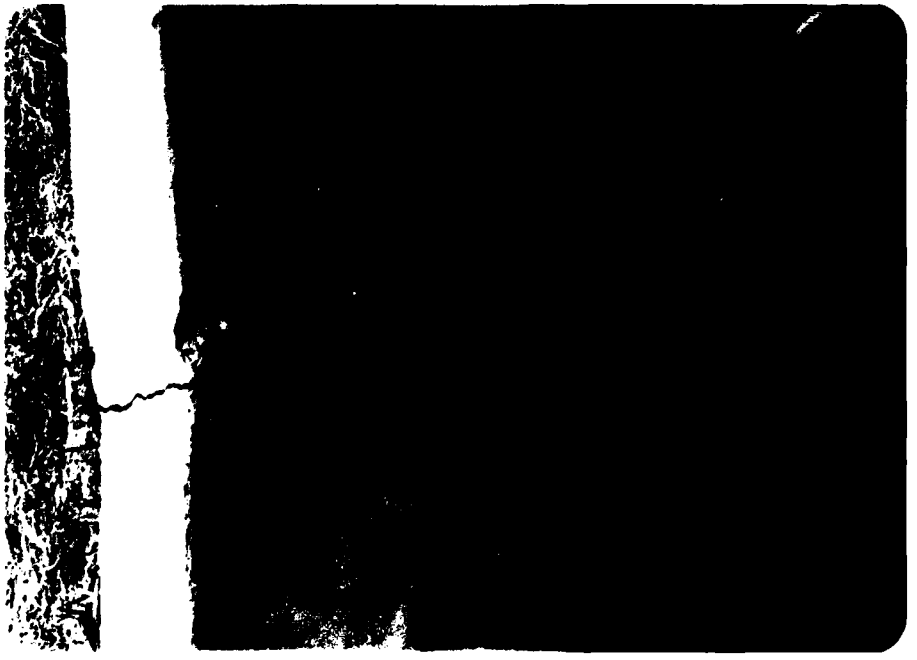


Photo 8 - Cracking of right spillway training wall (April 1980).

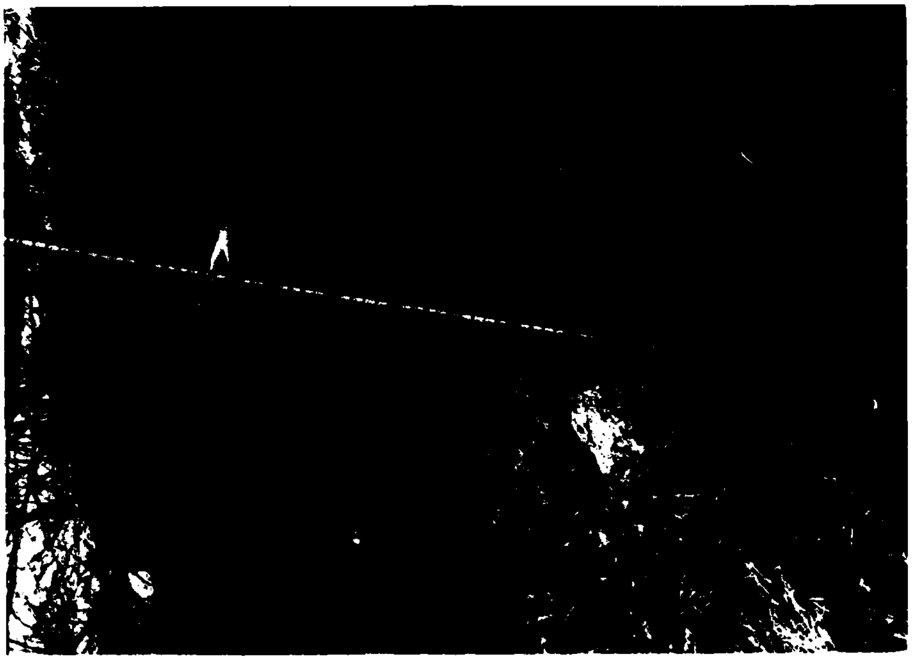


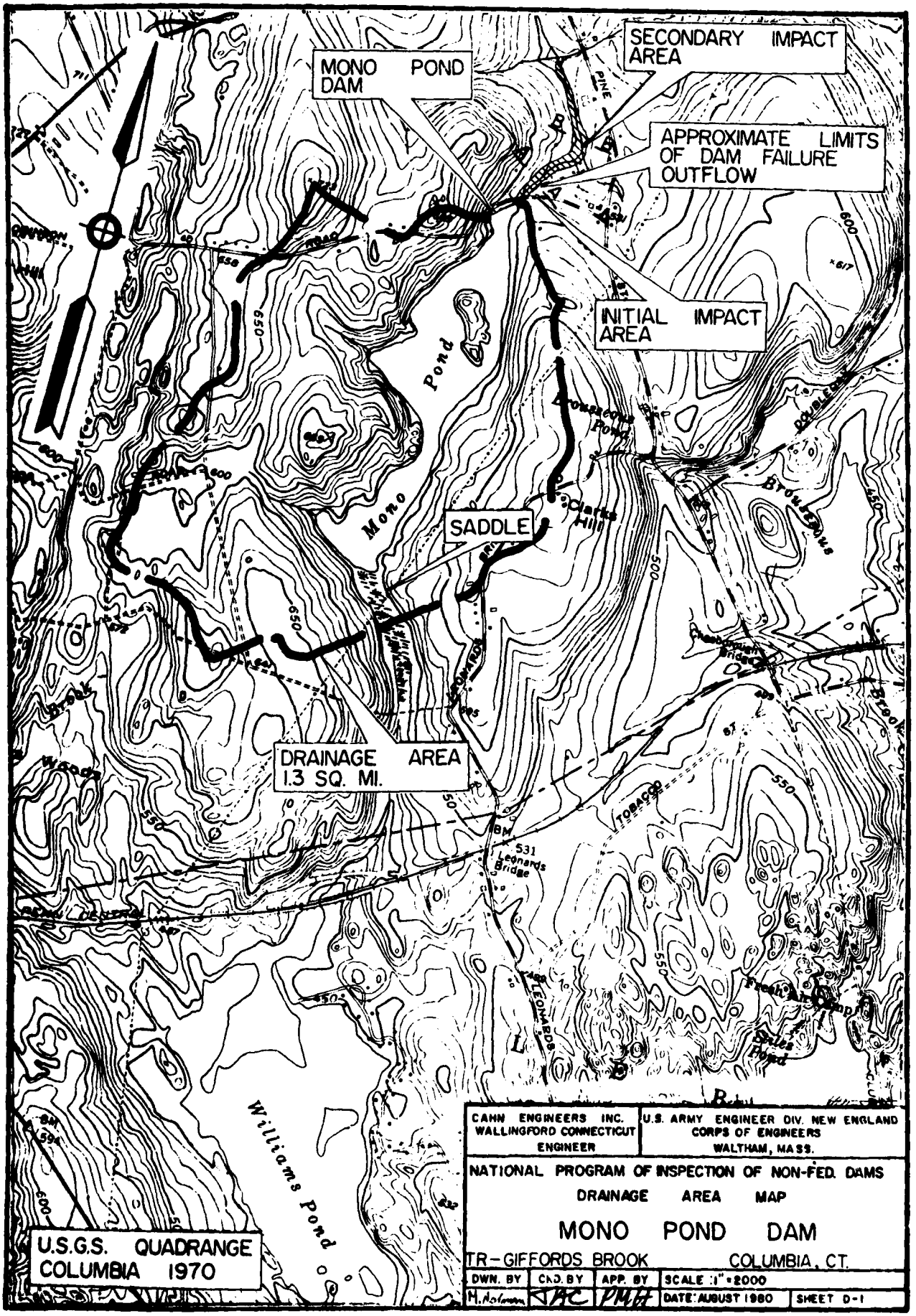
Photo 9 - Seepage at toe of right embankment (April, 1980).

Photo 10 - 6" drain pipe and spalling of concrete at left side of spillway (April 1980).

US ARMY ENGINEER DIV. NEW ENGLAND CORPS OF ENGINEERS WALTHAM, MASS.	NATIONAL PROGRAM OF INSPECTION OF NON-FED. DAMS	Mono Pond Dam TR - Giffords Brook Columbia, Ct.
CAHN ENGINEERS INC. WALLINGFORD, CONN. ENGINEER		CE# 27785 KD DATE Aug. 1980 PAGE C-5

APPENDIX D

HYDRAULICS/HYDROLOGIC COMPUTATIONS


MONO POND DAM
SECONDARY IMPACT AREA
APPROXIMATE LIMITS OF DAM FAILURE OUTFLOW
INITIAL IMPACT AREA
SADDLE
DRAINAGE AREA 1.3 SQ. MI.
U.S.G.S. QUADRANGLE COLUMBIA 1970
Mono Pond
Williams Pond
Clarks Hill
Leonards Bridge
Tobacco
Gifford Brook
CAHN ENGINEERS INC. WALLINGFORD CONNECTICUT ENGINEER
U.S. ARMY ENGINEER DIV. NEW ENGLAND CORPS OF ENGINEERS WALTHAM, MASS.
NATIONAL PROGRAM OF INSPECTION OF NON-FED. DAMS
DRAINAGE AREA MAP
MONO POND DAM
TR-GIFFORDS BROOK COLUMBIA, CT.
DWN. BY
CKD. BY
APP. BY
SCALE 1" = 2000
DATE AUGUST 1980
SHEET D-1

PROBABLE MAXIMUM FLOOD (PMF) DETERMINATION

DRAINAGE AREA — 1.27 Sq. MILES
OBTAINED FROM PLANIMETERING THE DRAINAGE AREA FROM USGS MAP.

WATERSHED CLASSIFICATION — GENERALLY "ROLLING" WITH A PORTION CONSIDERED "FLAT" DUE TO MONO POND AND SWAMP AREAS. THIS CLASSIFICATION IS ASSIGNED BY EXAMINING THE USGS MAP AND VISUAL OBSERVATION.

PMF PEAK INFLOW —
IN RECOGNITION OF THE EXISTENCE OF THE POND AND SWAMP AREAS, A PMF IS SELECTED WITH AN INTENSITY SOMEWHAT LOWER THAN THAT FOR "ROLLING" TERRAIN. FOR 1.27 SQ MILES OF DRAINAGE AREA AN INTENSITY OF 2000 CFS/Sq. MILE IS SELECTED FROM THE CORPS OF ENGINEERS DECEMBER 1977 PEAK FLOW RATES GUIDE CURVE.

∴ PMF PEAK INFLOW = 2000 × 1.27
≅ 2500 CFS.

SIZE CLASSIFICATION —
FOR THE PURPOSE OF DETERMINING PROJECT SIZE, THE MAXIMUM STORAGE ELEVATION IS CONSIDERED EQUAL TO TOP OF DAM.

HEIGHT OF DAM = EL. 546* — EL. 534** = 12 FEET

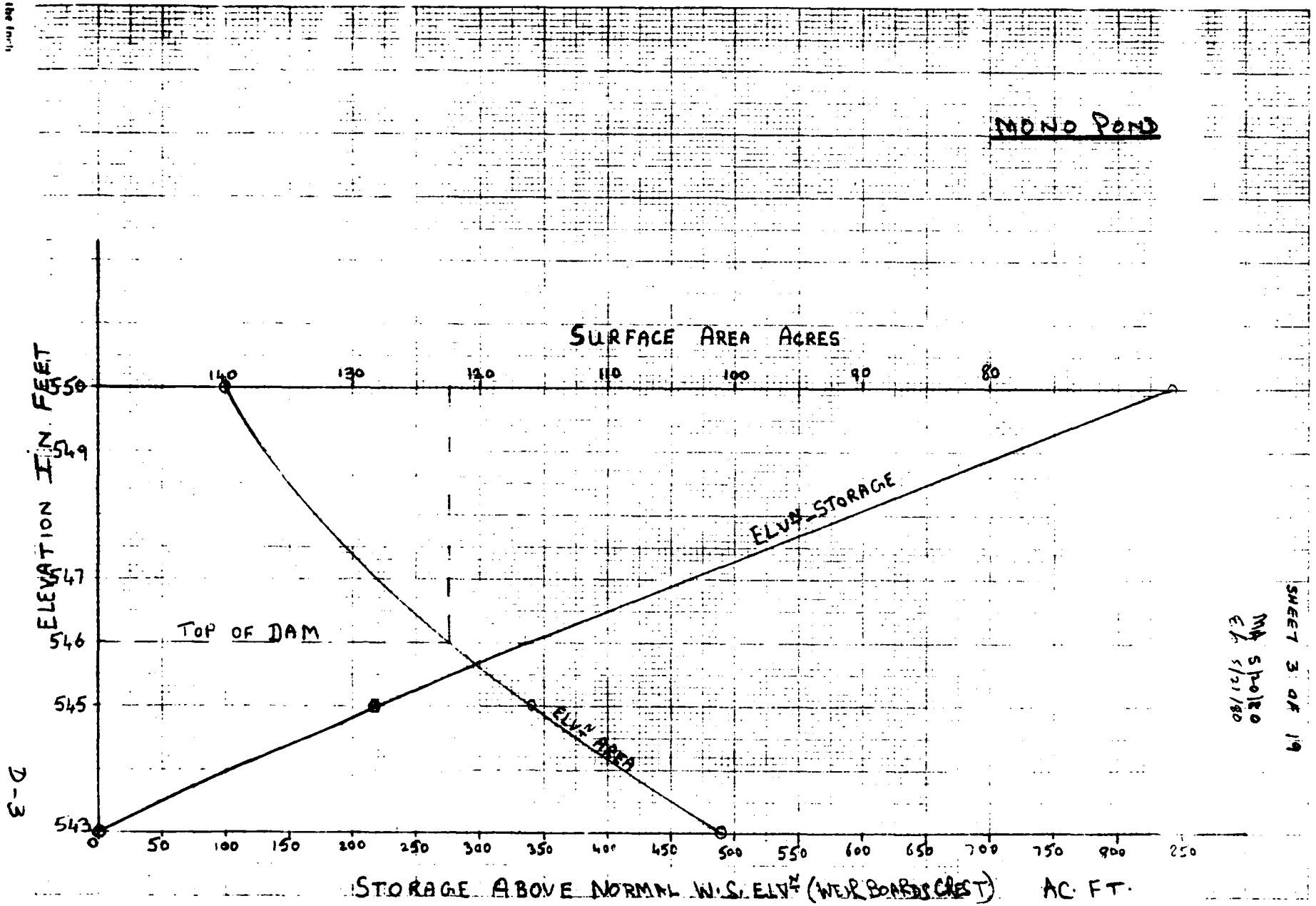
* FROM MARCH 1970 PLANS BY JOHN J. MOZZOCHI & ASSOCIATES AND FOR ALL ELEVATIONS NGVD IS ASSUMED.

** ESTIMATED FROM INFORMATION OBTAINED FROM MARCH 1970 PLANS BY JOHN J. MOZZOCHI & ASSOCIATES, USGS MAP AND CAHN ENGINEERS, INC FIELD DATA OF APRIL 3, 1980.

PLANIMETERING FROM USGS MAP FOR LAKE SURFACE AREAS—
AT EL. 543 (NORMAL W.S. ELV^N = CREST OF WEIR BOARDS WITH 4 BOARDS) = 101 ACRES
AT EL. 550 = 140 ACRES
ALSO LAKE AREA IS APPROXIMATED AT EL. 540 = 116 ACRES
THE AREA OF THE ISLAND WAS TAKEN INTO ACCOUNT IN THE ABOVE LAKE AREA MEASUREMENTS.
A STAGE-LAKE AREA CURVE IS PLOTTED (SHEET 3)
LAKE AREA TO TOP OF DAM (EL. 546) FROM THIS CURVE = 122.4 ACRES
AVERAGE LAKE AREA BETWEEN NORMAL W.S. ELV^N & TOP OF DAM $\cong$ 112 ACRES
$\therefore$ MAX^M STORAGE BETWEEN NORMAL W.S. ELV^N & TOP OF DAM = 3X112
= 336 Ac.Ft

ESTIMATED STORAGE BELOW NORMAL W.S. ELV^N (WITH 4 BOARDS) $= \frac{1}{3}bh$
$= \frac{1}{3} \times 101 \times 9 = 303$ Ac.Ft
(WHERE h = EL. 543 - EL. 534)
$\therefore$ MAXIMUM IMPOUNDMENT TO TOP OF DAM = 336 + 303 $\cong$ 640 Ac.Ft.
THUS, ACCORDING TO CORPS OF ENGINEERS GUIDELINES TABLE 1, THE MONO POND DAM IS CLASSIFIED SMALL BASED UPON STORAGE ($< 1000 \not> 50$) EVEN THOUGH THE HEIGHT OF DAM IS $< 25'$. USING THE ABOVE DATA, A STAGE-STORAGE CURVE IS PLOTTED (SHEET 3) FOR LATER USE.

HAZARD POTENTIAL—
A CLASSIFICATION OF SIGNIFICANT IS ASSIGNED BASED ON DAM BREACH ANALYSIS AND RELATIVE LOCATIONS OF HOUSES AND OTHER STRUCTURES. A DETAILED DISCUSSION OF HAZARD POTENTIAL IS INCLUDED AT THE END OF BREACH ANALYSIS SECTION OF APPENDIX D.



D-3

SHEET 3 OF 19

MM SHOLAR
E/A 5/21/80

TEST FLOOD PEAK INFLOW (QP)

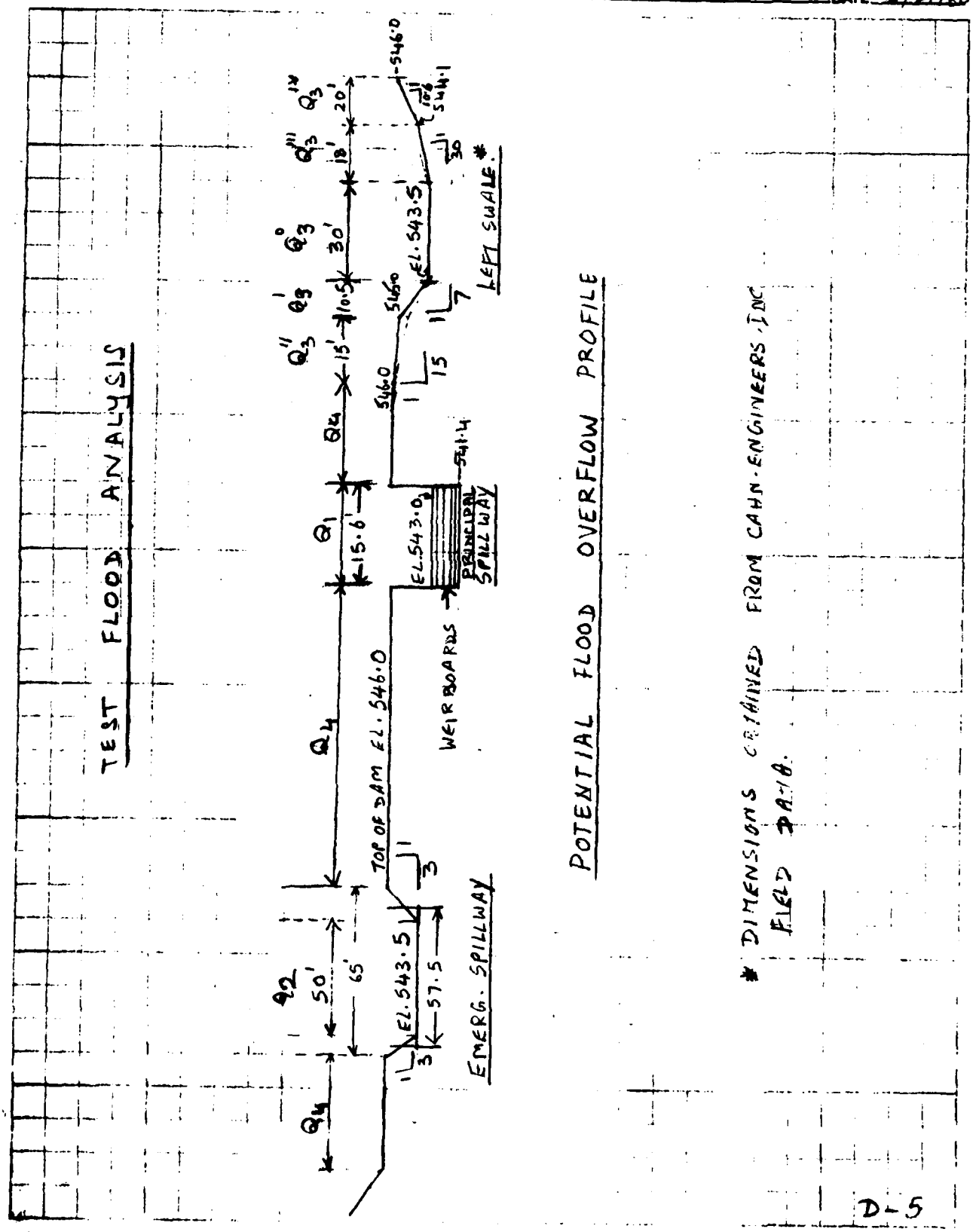
FOR THE SMALL SIZE AND SIGNIFICANT HAZARD POTENTIAL CLASSIFICATION, TABLE 3 OF CORPS OF ENGINEERS RECOMMENDED GUIDELINES, THE TEST FLOOD COULD BE IN THE 100YR TO 1/2 PMF RANGE. IN VIEW OF THE HOUSING DEVELOPMENT IMMEDIATELY DOWNSTREAM OF THE DAM, A TEST STORM OF MAGNITUDE AT THE HIGH END OF THIS RANGE EQUAL TO 1/2 PMF WILL BE EVALUATED.

SELECTING 1/2 PMF VALUE, THE TEST FLOOD PEAK INFLOW

$= \frac{1}{2} \times 2500$ CFS $=$ 1250 CFS.

DIVERSIFIED TECHNOLOGIES CORP. CONSULTING ENGINEERS NORTH HAVEN, CONN.

PROJECT NON FEDERAL DAM INSPECTION — PROJECT NO. 80-10-13 — SHEET 5 OF 19
NEW ENGLAND DIVISION — COMPUTED BY MA — DATE 6/20/80
MONO POND DAM — CHECKED BY Eb — DATE 6/21/80



D-5

DISCHARGE COMPUTATIONS

PRINCIPAL SPILLWAY — CONCRETE SPILLWAY WITH 4 WOODEN WEIR BOARDS.

$Q_1 = CLH^{3/2}$ WHERE C = 3.1 ASSUMED FOR SHARP-CRESTED WEIR & L = 15.6 FT (CAHN ENGINEERS FIELD DATA)
ELV^N OF CREST OF WEIR BOARDS = 543.0

NOTE: SINCE THE WEIR BOARDS ARE INTACT, THE ANALYSIS IS DONE WITH DISCHARGE OVER THE WEIR BOARDS WHICH IS MORE CRITICAL CONDITION FOR OVERTOPPING.

EMERGENCY SPILLWAY — EARTHEN SPILLWAY WITH RIPRAP ON SIDES & BOTTOM AND C = 2.5 ASSUMED, L = 27.5
$Q_2 = CLH^{3/2}$ CREST ELV^N = 543.5

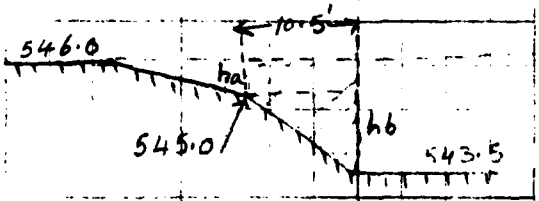
LEFT SWALE Q_3 — IRREGULAR CHANNEL WITH GRASS & BRUSH AND C = 2.0 ASSUMED.

THE DISCHARGE Q_3^o FROM THE HORIZONTAL SECTION OF THE SWALE IS COMPUTED BY —

$Q_3^o = CLH^{3/2}$ WHERE L = 30 FT. & CY. EL = 543.5

THE DISCHARGE Q_3' FROM THE INCLINED SECTION OF THE SWALE IS COMPUTED BY THE USGS METHOD* —

$$Q_3' = \frac{2}{5} C L \frac{(hb^{5/2} - ha^{5/2})}{(hb - ha)}$$



hb IS TAKEN FROM EL. 543.5 AND ha = 0 UP TO EL. 546.0

SIMILARLY, Q_3'', Q_3''' AND Q_3^{IV} ARE COMPUTED BY THE USGS METHOD.

* USGS RECOMMENDED FORMULA FOR MODIFIED BROAD-CRESTED WEIR FLOW OVER INCLINED EARTH/EMBANKMENT CREST (SEE MEASUREMENT OF PEAK DISCHARGES AT DAMS BY INDIRECT METHODS, BOOK 3, CHAPTER A-5, PAGES 3-4, 19-8).

VALUES FOR CORRESPONDING WATER SURFACE ELEVATION ARE ADDED AND TABULATED FOR Q_c.

DAM — GRASS COVERED EARTHEN DAM WITH UNIFORM SHAPE

$Q_4 = CLH^{3/2}$ AND C = 2.8 ASSUMED

CR. EL. 546.0.

TABULATION OF DISCHARGE RATES (CFS)

	ELEV.	PRINCIPAL SPILLWAY Q_1	EMERG. SPILLWAY Q_2	LEFT SWALE Q_3	DAM Q_4	TOTAL Q CFS	Q_1+Q_2 CFS.
EMER. SPILL. CREST.	543.5	17	0	0	0	17	17
	544	50	50	30	0	130	100
	545	136	264	190	0	590	400
	545.5	190	410	310	0	910	600
TOP OF DAM	546	250	570	460	0	1280	820
TEST FLOOD	545.3	170	340	250	0	760	510

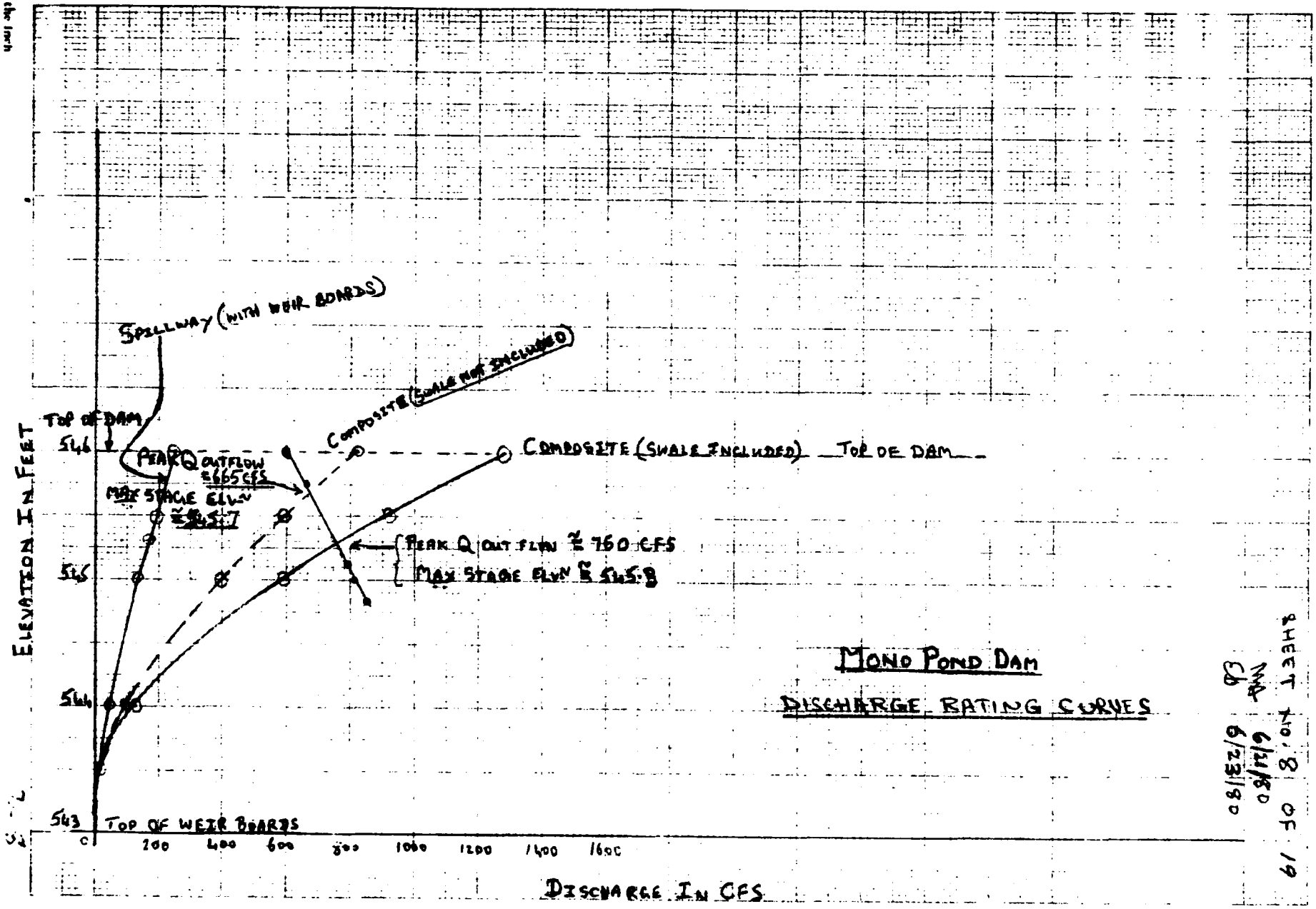
SPILLWAY RATING CURVE AND A COMPOSITE RATING CURVE ARE PLOTTED ON SHEET 8. IN ADDITION, A RATING CURVE WITH THE LEFT SWALE EXCLUDED IS ALSO PLOTTED TO ALLOW DETERMINATION OF ITS IMPACT ON THE PROJECT FOR TEST FLOOD CONDITION.

NO LOW LEVEL OUTLET EXISTS AT THE DAM.

NOTE: THE PRINCIPAL SPILLWAY CAPACITY WITH WEIR BOARDS REMOVED IS ESTIMATED TO BE:

TOP OF DAM EL. 546 Q_1 = 460 CFS

TEST FLOOD EL. 545.3 Q_1 = 360 CFS



MOND POND DAM

DISCHARGE RATING CURVES

SHEET No. 8 OF 19

6/11/80

6/23/80

DETERMINATION OF PEAK OUTFLOW

SHORT CUT ROUTING OF RESERVOIR —

FOR TEST FLOOD INFLOW OF 1250 CFS (Q_P)

½ PMF HAS 9½" RUN-OFF FROM THE DRAINAGE AREA OF 1.27 SQ MI

FOR 1250 CFS THE DISCHARGE RATING CURVE GIVES EL 545.96 (SWALE INCLUDED)

AND FROM STAGE STORAGE CURVE FOR THIS ELVN, STORAGE = 330 AC.FT.

$$STOR_i = \frac{330 \times 12}{1.27 \times 640} = 4.87" \text{ OF RUN-OFF}$$

$$Q_{P_i} = Q_P \left(1 - \frac{STOR_i}{9\frac{1}{2}}\right)$$

① $STOR_i$ INCHES	② $\left(1 - \frac{STOR_i}{9.5}\right)$	③ $STOR_i$ Ac.Ft ① $\times \frac{1.27 \times 640}{12}$	④ Q_{P_i} CFS ② $\times$ 1250	⑤ ELVN FROM STORAGE CURVE USING ③
3.00	0.68	203	850	544.82
3.25	0.65	220	813	545
3.5	0.63	237	788	545.12
4.5	0.53	304	660	545.75
4.87	0.48	330	600	545.96
5.00	0.47	339	588	546

COLUMNS ④ & ⑤ ARE PLOTTED ON DISCHARGE RATING CURVE AND WE OBTAIN —

PEAK OUTFLOW Q = 760 CFS

MAXIMUM STAGE = 545.3

TOP OF DAM EL = 546

∴ THERE IS NO OVERTOPPING OF THE DAM.

WITHOUT SWALE. (THAT IS IF THE SWALE WERE TO BE BLOCKED)

PEAK OUTFLOW Q = 665 CFS

MAX^M STAGE = 545.7

∴ NO OVERTOPPING OF THE DAM

BREACH ANALYSIS - DOWNSTREAM FAILURE HAZARD

BREACH OUTFLOW $Q_b = \frac{8}{27} \times W_b \sqrt{g} \times y_o^{3/2}$

FROM FILE INFORMATION, INCLUDING MARCH 1970 DRAWING BY JOHN J. MOZZACHI & ASSOCIATES; CAHN ENGINEERS INC. FIELD DATA, AND USGS MAP, THE ELEVATION OF LOWEST SECTION OF DAM IS ESTIMATED TO BE 534

TOP OF THE DAM = EL. 546

∴ HEIGHT OF DAM = EL. 546 − EL. 534 = 12 FT = y_o

BREACH WIDTH W_b —

THE EXISTING FILE INFORMATION DOES NOT GIVE MID-HEIGHT LENGTH. THEREFORE, AN ESTIMATE IS MADE USING USGS MAP AND EXISTING DAM CONFIGURATION.

MID-HEIGHT LENGTH ESTIMATED = 206± FEET.

∴ W_b = 40% × 206 = 82.4 FEET

USE W_b = 80 FEET

$$Q_b = \frac{8}{27} \times 80 \times \sqrt{32.2} \times (12)^{3/2} = 5590 \text{ CFS}$$

PEAK FAILURE OUTFLOW (Q_P) = Q_b + EMERG. SPILLWAY AND LEFT SWALE DISCHARGE @ MAX^M POOL = 5590 + 590 ≅ 6200 CFS

NOTE: PRINCIPAL SPILLWAY IS PART OF BREACH

ESTIMATED FAILURE FLOOD DEPTH IMMEDIATELY D/S OF DAM ≅ 0.44 y_o = 0.44 × 12 = 5.3 FT

PERFORM D/S ROUTING OF PEAK FAILURE OUTFLOW

SELECT A SECTION AA 500' DOWN STREAM OF THE DAM

USING MANNING'S EQUATION

$Q = A \times \frac{1.486}{n} \times R^{2/3} \times S^{\frac{1}{2}}$

WHERE $n = 0.070$ ASSUMED
AND $S = 0.033$ ESTIMATED FROM USGS MAP

$= 3.86 \times A \times R^{2/3}$

EL.	A Sq. Ft	P	$R = \frac{A}{P}$	$R^{2/3}$	Q CFS
525.8	0	—	—	—	—
530	462	220	2.1	1.64	2900
532.5	1187	360	3.3	2.22	10,200
535	2262	500	4.5	2.74	23,900

STAGE-AREA AND STAGE DISCHARGE CURVES ARE PLOTTED FOR SECTION AA (SHEETS 12 & 13)
FOR PEAK FAILURE OUTFLOW $QP_1 = 6200$ CFS. ELEV = 531.4 FROM STAGE-DISCHARGE CURVE AND STAGE-AREA CURVE GIVES = 823 Sq Ft.

VOLUME OF REACH $V_1 = \frac{500 \times 823}{43,560} = 9.4$ Ac. Ft.

TRIAL $QP_2 = QP_1 \left(1 - \frac{V_1}{S}\right)$ WHERE S = TOTAL STORAGE TO MAXIMUM POOL EL. 545.3 (SNALE INCLUDED)
$S = 255 + 303 \cong 560$ Ac. Ft.

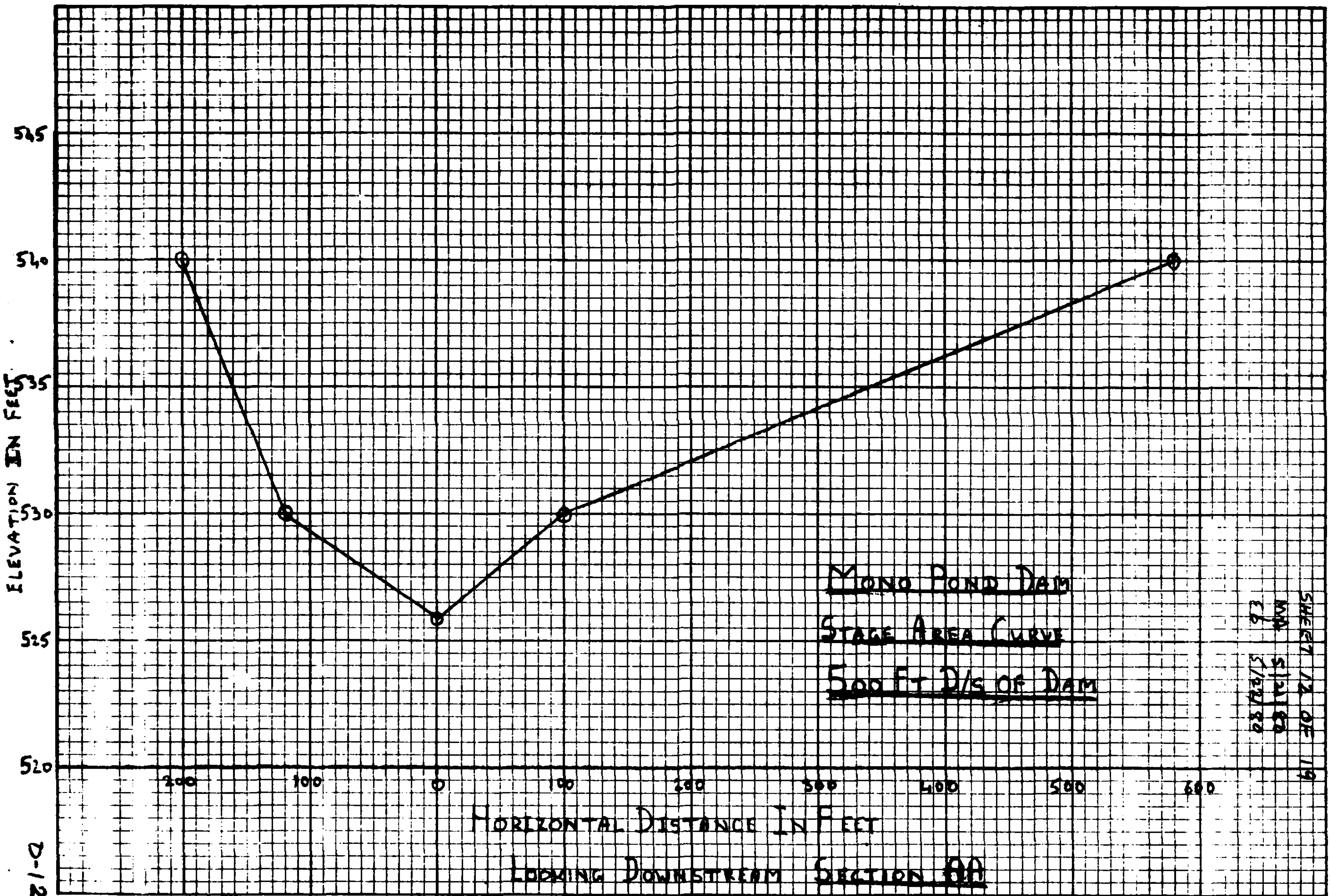
$= 6200\left(1 - \frac{9.4}{560}\right) \cong 6100$ CFS.

FOR THIS QP_2 THE STAGE-DISCHARGE CURVE GIVES. ELEV 531.35 AND
AREA = 806 Sq. Ft.

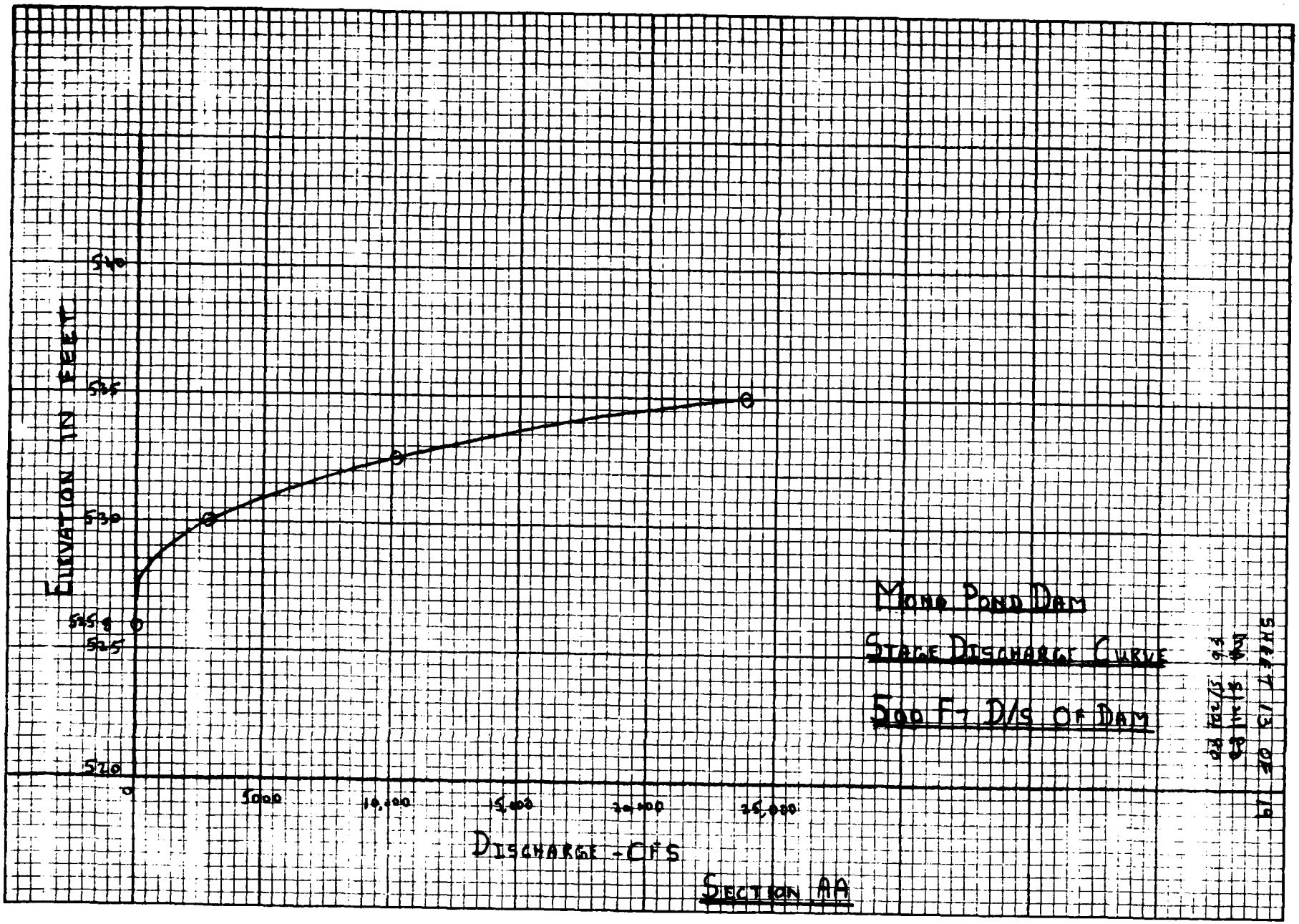
$\therefore V_2 = \frac{500 \times 806}{43,560} = 9.3$ Ac. Ft.

$\therefore QP_2 = 6200\left(1 - \frac{9.4 + 9.3}{560}\right) \cong 6100$ CFS

AND EL. 531.35 FROM STAGE DISCHARGE CURVE.
$\therefore$ FLOOD DEPTH AT SECTION AA = EL 531.35 − EL 525.8 $\cong$ 5.6 FT
AND VELOCITY AT SECTION AA = $\frac{6100}{806}$ = 7.6 FPS (FAIRLY HIGH)



SHEET 12 OF 19
MA 5/21/80
EB 5/22/80
MONO POND DAM
STAGE AREA CURVE
500 FT D/S OF DAM
ELEVATION IN FEET
545
540
535
530
525
520
200
100
0
100
200
300
400
500
600
HORIZONTAL DISTANCE IN FEET
LOOKING DOWNSTREAM SECTION AA



MONA POND DAM

STAGE DISCHARGE CURVE

500 FT D/S OF DAM

SECTION AA

SELECT SECTION BB 1000' D/S OF AA.

$Q = A \times \frac{1.486}{n} \times R^{2/3} \times S^{\frac{1}{2}}$

$Q = 3.50 \times A \times R^{2/3}$

ASSUME $n = 0.060$ (FAIRLY REGULAR SECTION OF STREAM)
$S = 0.02$ ESTIMATED FROM USGS MAP

El.	A Sq.Ft.	P	$R = \frac{A}{P}$	$R^{2/3}$	Q CFS
505	0	—	—	—	—
510	650	260	2.5	1.84	4200
512.5	1518	405	3.75	2.41	12,800

STAGE-AREA AND STAGE-DISCHARGE CURVES ARE PLOTTED (SHEETS 15 & 16)
FOR Q_{P_1} = 6100 CFS, ELVN = 511.2 AND FROM STAGE AREA CURVE, AREA = 976 SQ. FT.

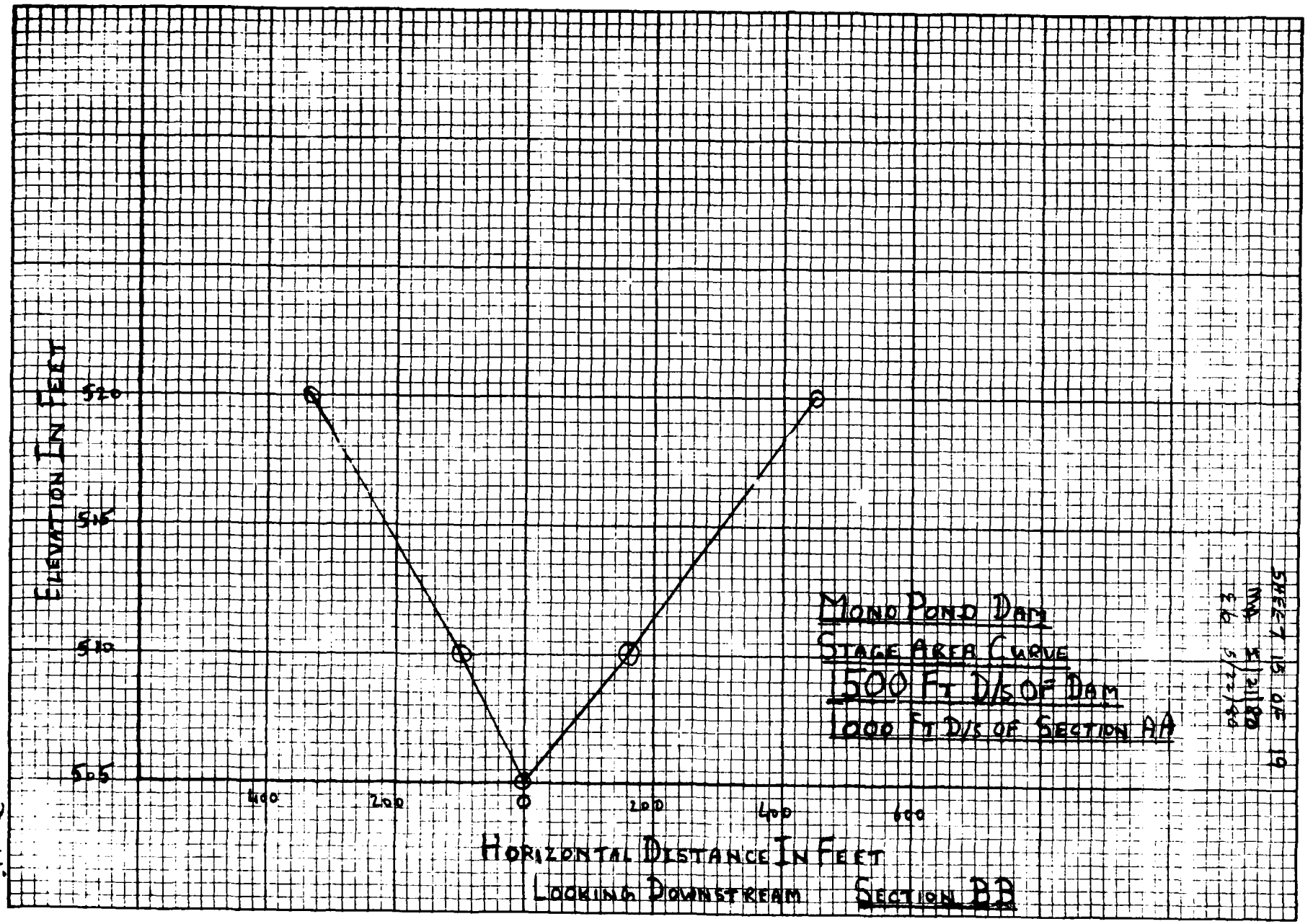
VOLUME OF REACH $V_1 = \frac{1000 \times 976}{43,560} = 22.4$ AC.FT.

STORAGE REMAINING $= 560 - \frac{9.4+9.3}{2} = 551$ AC.FT.

TRIAL $Q_{P_2} = Q_{P_1}\left(1 - \frac{V_1}{S}\right) = 6100\left(1 - \frac{22.4}{551}\right) = 5850$ CFS

FOR 5850 CFS, ELVN = 511 AND AREA = 915 SQ.FT.

$\therefore V_2 = \frac{1000 \times 915}{43,560} = 21.0$ AC.FT.



MOND POND DAM
STAGE AREA CURVE
1500 FT D/S OF DAM
1000 FT D/S OF SECTION AA

SHEET 15 OF 19
MWH 5/21/80
3.6 5/22/80

D-15

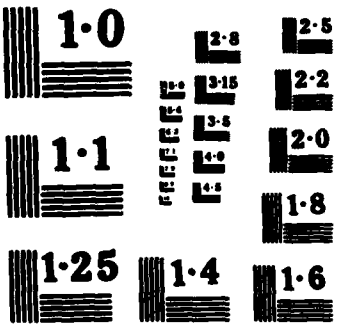
AD-A144 317 NATIONAL PROGRAM FOR INSPECTION O NON-FEDERAL DAMS 2/2
MONO POND DAM (CT 002..(U) CORPS OF ENGINEERS WALTHAM
MA NEW ENGLAND DIV AUG 80

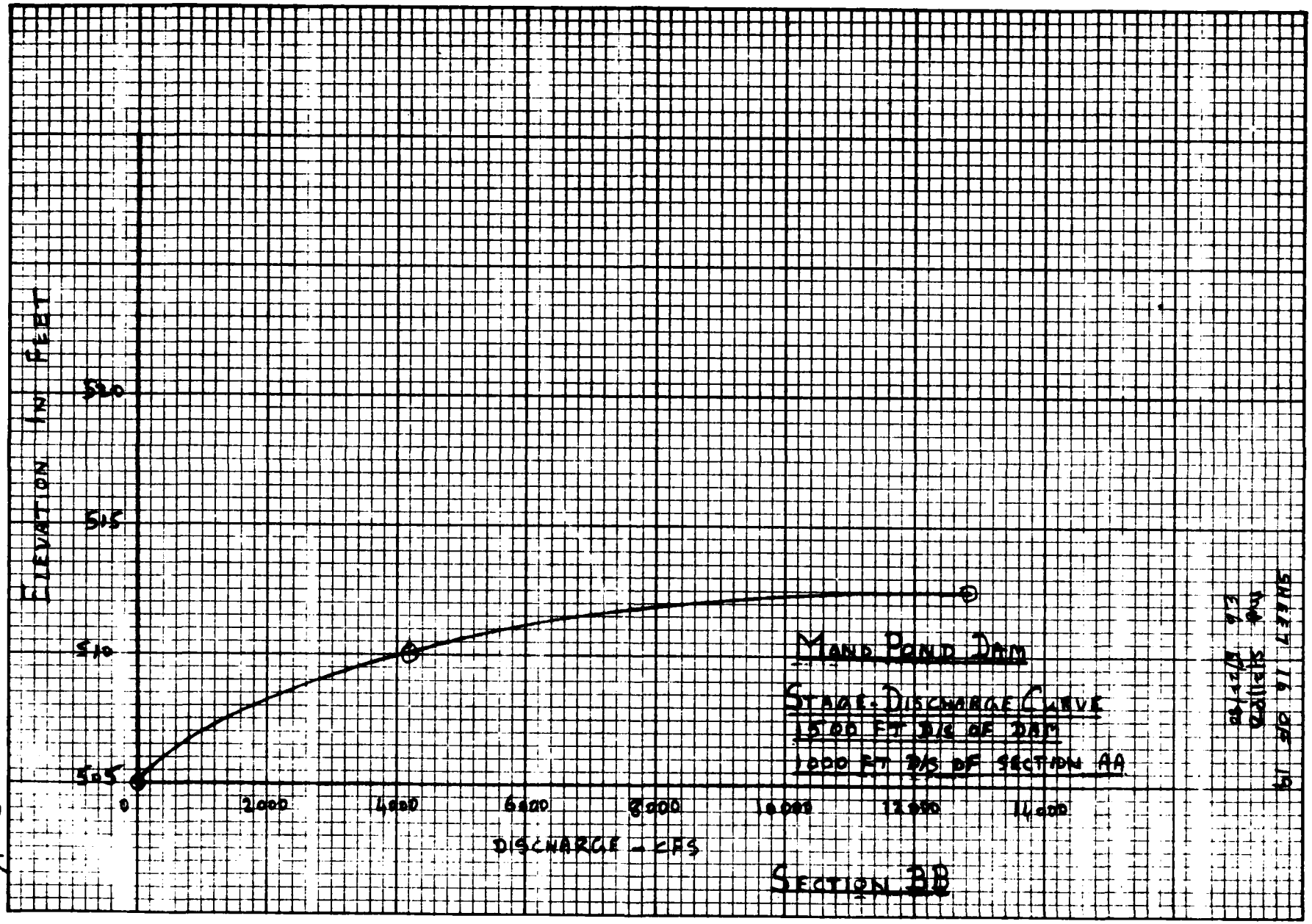
UNCLASSIFIED F/G 13/13 NL

END

FILMED

DTIC


1·0
1·1
1·25
1·4
1·6
1·8
2·0
2·2
2·5
2·8
3·15
3·5
4·0
4·5


ELEVATION IN FEET
520
515
510
505
0
2000
4000
6000
8000
10000
12000
14000
DISCHARGE - CFS
MANN POND DAM
STAGE-DISCHARGE CURVE
1500 FT D/S OF DAM
1000 FT D/S OF SECTION AA
SECTION BB

RECOMPUTING $Q_{P_2} = 6100\left(1 - \frac{22.4+21.0}{2} \Big/ 551\right) = 5860$ CFS

AND EL. 511 FROM STAGE-DISCHARGE CURVE

∴ FLOOD DEPTH AT SECTION BB = EL. 511 − EL. 505.0 = 6.0 FT

VELOCITY AT SECTION BB $= \frac{5860}{915} = 6.4$ FPS (STILL HIGH)

STAGE BEFORE FAILURE.

OUTFLOW AT MAXIMUM POOL = 760 CFS

AT SECTION AA —

FROM STAGE-DISCHARGE CURVE, FLOOD STAGE = 528.5

AT SECTION BB —

FROM STAGE-DISCHARGE CURVE FLOOD STAGE = 506.6

FAILURE HAZARD POTENTIAL
SUMMARY OF BREACH ANALYSIS RESULTS:

LOCATION	DISTANCE FT	QCFS	CHANNEL INVERT	FLOOD STAGE	DEPTH OF WATER FT	VELOCITY FPS	STORAGE VOLUME REMAINING AC-FT
DAM	0	6200	534	539.3	5.3	—	560
AA	500	6100	525.8	531.35	5.6±	7.6	551
BB	1500	5860	505	511	6.0	6.4	529

AT DAM BREACH, THE FLOOD WATER COULD DAMAGE AT LEAST FOUR HOUSES AND TWO CULVERTS IMMEDIATELY DOWNSTREAM OF THE DAM AS INDICATED ON THE MAP. THESE HOUSES MAY HAVE 15± FT. FLOOD WATER SINCE THEY ARE IN CLOSE PROXIMITY TO THE BROOK AND ARE ESTIMATED 4± FT. ABOVE CHANNEL BED. IT MAY BE NOTED THAT THE VELOCITIES AT SECTIONS AA AND BB AT DAM BREACH ARE FAIRLY HIGH AND COULD BE DAMAGING. ADDITIONALLY, ONLY 5.5% OF THE 560 AC-FT. OF FLOOD WATER IS EXPECTED TO BE DISSIPATED IN THE 1500 FT. STRETCH IMMEDIATELY BELOW THE DAM. IN ADDITION, IT IS NOTED THAT AT SOUTH END OF MONO POND THERE IS A SADDLE, WHICH COULD ACT AS A SECONDARY EMERGENCY SPILLWAY DRAINING TO WILLIAMS POND WHEN THE MONO POND ELEVATION RISES UNUSUALLY HIGH. THUS, UNDER THESE CONDITIONS, THE DAM IS NOT EXPECTED TO OVERTOP. IT IS SUGGESTED THAT THE IMPACT OF THE LEFT SWALE AND THE SADDLE SHOULD BE EVALUATED IN DEPTH IN A FUTURE STUDY.

THUS, IT CAN BE SEEN FROM THE ABOVE DISCUSSION, A HAZARD POTENTIAL OF SIGNIFICANT MAGNITUDE IS CONSIDERED LIKELY.

SUMMARY- HYDRAULIC/HYDROLOGIC COMPUTATIONS

TEST FLOOD PEAK INFLOW ½ PMF	1250 CFS
PERFORMANCE AT PEAK FLOOD CONDITIONS:	
PEAK INFLOW	1250 CFS
PEAK OUTFLOW	760 CFS
SPILLWAY CAPACITY TO TOP OF DAM (EL.546.0)	250 CFS
SPILLWAY CAPACITY TO TOP OF DAM % OF TEST FLOOD OUTFLOW	33%
SPILLWAY CAPACITY TO TEST FLOOD ELV^N. (EL.545.3)	170 CFS
SPILLWAY CAPACITY TO TEST FLOOD ELV^N. % OF TEST FLOOD OUTFLOW	23%
EMERGENCY SPILLWAY & SWALE CAPACITY TO TOP OF DAM	1030 CFS
EMERGENCY SPILLWAY & SWALE CAPACITY % OF TEST FLOOD OUTFLOW	135%
EMERGENCY SPILLWAY & SWALE CAPACITY TO TEST FLOOD ELV^N	590 CFS
EMERGENCY SPILLWAY & SWALE CAPACITY TO TEST FLOOD ELV^N % OF TEST FLOOD OUTFLOW	78%
TEST FLOOD-DAM OVERTOPPED:	
MAXIMUM POOL ELEVATION	545.3
MAXIMUM SURCHARGE HEIGHT ABOVE NORMAL W.S. ELEVN.	2.3 FT
NON-OVERFLOW SECTION OF THE DAM OVERTOPPED BY	N.A.
DOWNSTREAM FAILURE CONDITIONS:	
TOTAL PEAK FAILURE OUTFLOW	6200 CFS
HEIGHT AT TIME OF FAILURE	5.3 FT
CONDITIONS AT INITIAL IMPACT AREA: (STREAM BED EL.525.8)	
STAGE BEFORE FAILURE WITH 760 CFS	528.5
STAGE AFTER FAILURE WITH REACH OUTFLOW 6100 CFS	531.35
RAISE IN STAGE AFTER FAILURE ΔY_1	2.9±FT
CONDITIONS AT SECONDARY IMPACT AREA: (STREAM BED EL.505)	
STAGE BEFORE FAILURE WITH 760 CFS	506.6
STAGE AFTER FAILURE WITH REACH OUTFLOW 5860 CFS	511
RAISE IN STAGE AFTER FAILURE ΔY_2	4.4 FT

PRELIMINARY GUIDANCE

FOR ESTIMATING

MAXIMUM PROBABLE DISCHARGES

IN

PHASE I DAM SAFETY

INVESTIGATIONS

New England Division
Corps of Engineers

March 1978

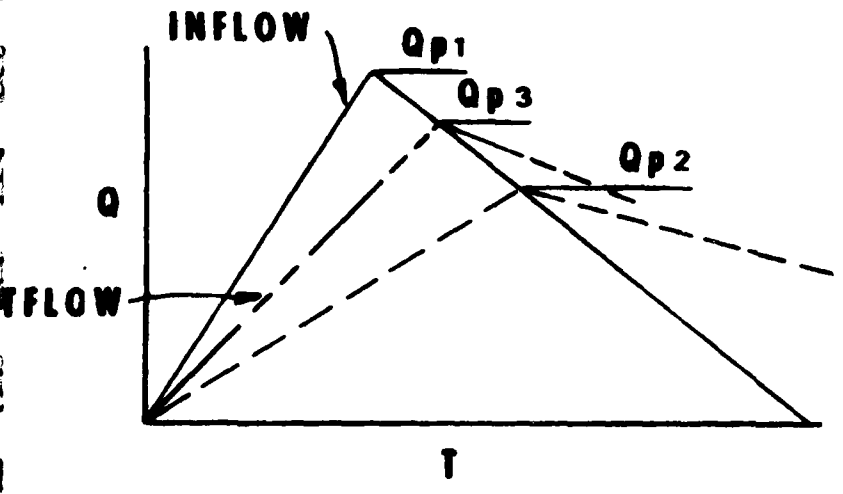
MAXIMUM PROBABLE FLOOD INFLOWS
NED RESERVOIRS

	Project	Q (cfs)	D.A. (sq. mi.)	MPF cfs/sq. mi.
1.	Hall Meadow Brook	26,600	17.2	1,546
2.	East Branch	15,500	9.25	1,675
3.	Thomaston	158,000	97.2	1,625
4.	Northfield Brook	9,000	5.7	1,580
5.	Black Rock	35,000	20.4	1,715
6.	Hancock Brook	20,700	12.0	1,725
7.	Hop Brook	26,400	16.4	1,610
8.	Tully	47,000	50.0	940
9.	Barre Falls	61,000	55.0	1,109
10.	Conant Brook	11,900	7.8	1,525
11.	Knightville	160,000	162.0	987
12.	Littleville	98,000	52.3	1,870
13.	Colebrook River	165,000	118.0	1,400
14.	Mad River	30,000	18.2	1,650
15.	Sucker Brook	6,500	3.43	1,895
16.	Union Village	110,000	126.0	873
17.	North Hartland	199,000	220.0	904
18.	North Springfield	157,000	158.0	994
19.	Ball Mountain	190,000	172.0	1,105
20.	Townshend	228,000	106.0(278 total)	820
21.	Surry Mountain	63,000	100.0	630
22.	Otter Brook	45,000	47.0	957
23.	Birch Hill	88,500	175.0	505
24.	East Brimfield	73,900	67.5	1,095
25.	Westville	38,400	99.5(32 net)	1,200
26.	West Thompson	85,000	173.5(74 net)	1,150
27.	Hodges Village	35,600	31.1	1,145
28.	Buffumville	36,500	26.5	1,377
29.	Mansfield Hollow	125,000	159.0	786
30.	West Hill	26,000	28.0	928
31.	Franklin Falls	210,000	1000.0	210
32.	Blackwater	66,500	128.0	520
33.	Hopkinton	135,000	426.0	316
34.	Everett	68,000	64.0	1,062
35.	MacDowell	36,300	44.0	825

MAXIMUM PROBABLE FLOWS BASED ON TWICE THE STANDARD PROJECT FLOOD (Flat and Coastal Areas)

	River	SPF (cfs)	D.A. (sq. mi.)	MPF (cfs/sq. mi.)
1.	Pawtuxet River	19,000	200	190
2.	Mill River (R.I.)	8,500	34	500
3.	Peters River (R.I.)	3,200	13	490
4.	Kettle Brook	8,000	30	530
5.	Sudbury River.	11,700	86	270
6.	Indian Brook (Hopk.)	1,000	5.9	340
7.	Charles River.	6,000	184	65
8.	Blackstone River.	43,000	416	200
9.	Quinebaug River	55,000	331	330

ESTIMATING EFFECT OF SURCHARGE STORAGE ON MAXIMUM PROBABLE DISCHARGES



STEP 1: Determine Peak Inflow (Qp_1) from Guide Curves.

STEP 2: a. Determine Surcharge Height To Pass "Qp_1".

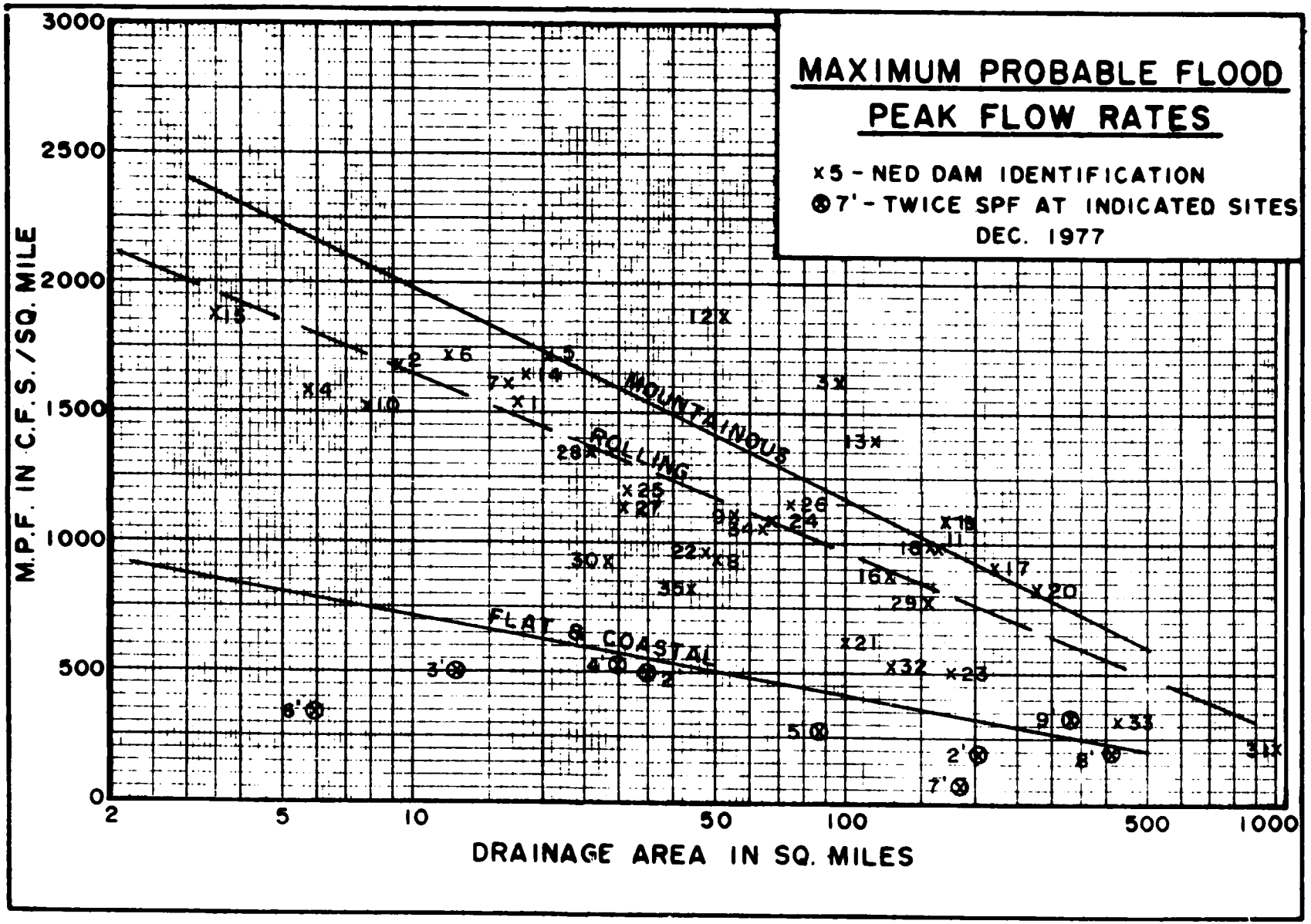
b. Determine Volume of Surcharge ($STOR_1$) In Inches of Runoff.

c. Maximum Probable Flood Runoff In New England equals Approx. 19", Therefore:

$$Qp_2 = Qp_1 \times \left(1 - \frac{STOR_1}{19}\right)$$

STEP 3: a. Determine Surcharge Height and "$STOR_2$" To Pass "Qp_2"

b. Average "$STOR_1$" and "$STOR_2$" and Determine Average Surcharge and Resulting Peak Outflow "Qp_3".


MAXIMUM PROBABLE FLOOD
PEAK FLOW RATES
x5 - NED DAM IDENTIFICATION
⊗7' - TWICE SPF AT INDICATED SITES
DEC. 1977
M.P.F. IN C.F.S./SQ. MILE
DRAINAGE AREA IN SQ. MILES
3000
2500
2000
1500
1000
500
0
2
5
10
50
100
500
1000
MOUNTAINOUS
ROLLING
FLAT & COASTAL

SURCHARGE STORAGE ROUTING SUPPLEMENT

STEP 3: a. Determine Surcharge Height and "$STOR_2$" To Pass "Qp_2"

b. Avg "$STOR_1$" and "$STOR_2$" and Compute "Qp_3".

c. If Surcharge Height for Qp_3 and "$STOR_{AVG}$" agree O.K. If Not:

STEP 4: a. Determine Surcharge Height and "$STOR_3$" To Pass "Qp_3"

b. Avg. "Old $STOR_{AVG}$" and "$STOR_3$" and Compute "Qp_4"

c. Surcharge Height for Qp_4 and "New $STOR_{Avg}$" should Agree closely

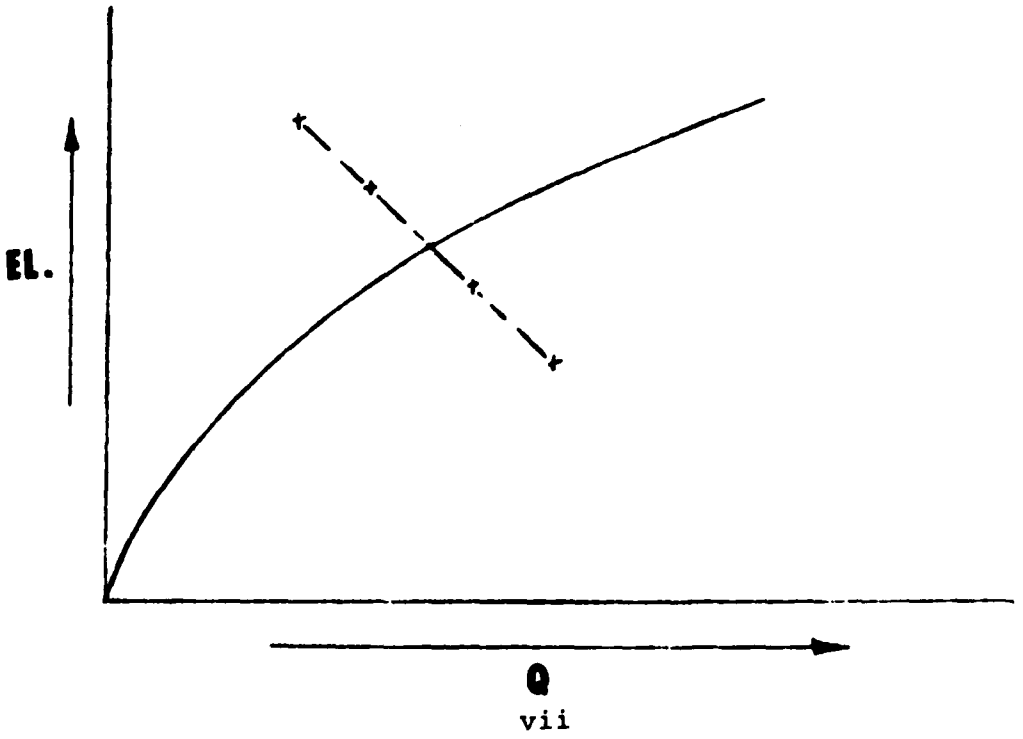
SURCHARGE STORAGE ROUTING ALTERNATE

$$Q_{p2} = Q_{p1} \times \left(1 - \frac{STOR}{19}\right)$$

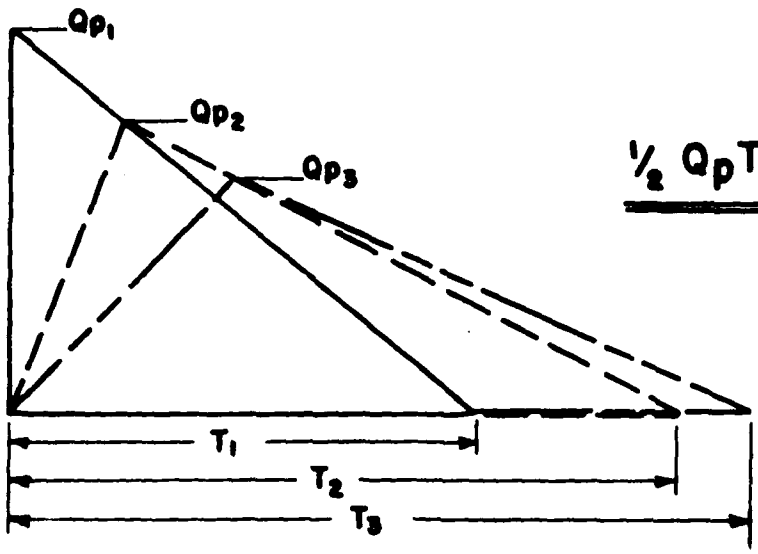
$$Q_{p2} = Q_{p1} - Q_{p1}\left(\frac{STOR}{19}\right)$$

FOR KNOWN Q_{p1} AND 19" R.O.

Q_{p2}	STOR	EL.
≡≡≡	≡≡≡	≡≡≡



"RULE OF THUMB" GUIDANCE FOR ESTIMATING DOWNSTREAM DAM FAILURE HYDROGRAPHS



$\frac{1}{2} Q_p T = 12 S$

STEP 1: DETERMINE OR ESTIMATE RESERVOIR STORAGE (S) IN AC-FT AT TIME OF FAILURE.

STEP 2: DETERMINE PEAK FAILURE OUTFLOW (Q_{p1}).

$$Q_{p_1} = \frac{8}{27} W_b \sqrt{g} Y_o^{\frac{3}{2}}$$

W_b = BREACH WIDTH - SUGGEST VALUE NOT GREATER THAN 40% OF DAM LENGTH ACROSS RIVER AT MID HEIGHT.

Y_o = TOTAL HEIGHT FROM RIVER BED TO POOL LEVEL AT FAILURE.

STEP 3: USING USGS TOPO OR OTHER DATA, DEVELOP REPRESENTATIVE STAGE-DISCHARGE RATING FOR SELECTED DOWNSTREAM RIVER REACH.

STEP 4: ESTIMATE REACH OUTFLOW (Q_{p2}) USING FOLLOWING ITERATION.

A. APPLY Q_{p1} TO STAGE RATING, DETERMINE STAGE AND ACCOPMANYING VOLUME (V_1) IN REACH IN AC-FT. (NOTE: IF V_1 EXCEEDS 1/2 OF S, SELECT SHORTER REACH.)

B. DETERMINE TRIAL Q_{p2}.

$$Q_{p_2}(\text{TRIAL}) = Q_{p_1}\left(1 - \frac{V_1}{S}\right)$$

C. COMPUTE V_2 USING Q_{p2} (TRIAL).

D. AVERAGE V_1 AND V_2 AND COMPUTE Q_{p2}.

$$Q_{p_2} = Q_{p_1}\left(1 - \frac{V_{mean}}{S}\right)$$

STEP 5: FOR SUCCEEDING REACHES REPEAT STEPS 3 AND 4.

APRIL 1978

APPENDIX E

INFORMATION AS CONTAINED IN THE NATIONAL INVENTORY OF DAMS

INVENTORY OF DAMS IN THE UNITED STATES

(1) STATE	(2) IDENTITY NUMBER	(3) DIVISION	(4) STATE	(5) COUNTY	(6) CONGR DIST	(7) STATE	(8) COUNTY	(9) CONGR DIST	(9) NAME	(10) LATITUDE (NORTH)	(11) LONGITUDE (WEST)	(12) REPORT DATE DAY | MO | YR
CT	256	NED	CT	013	02				MONO POND DAM	4140.8	7218.7	01SEP80

(13) POPULAR NAME	(14) NAME OF IMPOUNDMENT
	MONO POND

(15) REGION	(16) BASIN	(17) RIVER OR STREAM	(18) NEAREST DOWNSTREAM CITY–TOWN–VILLAGE	(19) DIST FROM DAM (MI.)	(20) POPULATION
01	10	TR-GIFFORDS BROOK	COLUMBIA	1	3200

(21) TYPE OF DAM	(22) YEAR COMPLETED	(23) PURPOSES	(24) STRUCTURAL HEIGHT (FT.)	(25) HYDRAULIC HEIGHT (FT.)	(26) IMPOUNDING CAPACITIES MAXIMUM (ACRE-FT.)	(27) IMPOUNDING CAPACITIES NORMAL (ACRE-FT.)	(28) DIST	(29) OWN	(30) FED R	(31) PRV/FED	(32) SCS A	(33) VER/DATE
REPG	1900	R	12	12	680	300	NED	N	N	N	N	

(34) REMARKS
22-REBUILT, RAISED 1973

(35) DAMS	(36) SPILLWAY CREST LENGTH	(37) TYPE	(38) SPILLWAY WIDTH	(39) MAXIMUM DISCHARGE (FT.)	(40) VOLUME OF DAM (CY)	(41) POWER CAPACITY INSTALLED (MW)	(42) POWER CAPACITY PROPOSED (MW)	(43) NAVIGATION LOCKS NO.	(44) LENGTH (FT.)	(45) WIDTH (FT.)	(46) LENGTH (FT.)	(47) WIDTH (FT.)	(48) LENGTH (FT.)	(49) WIDTH (FT.)	(50) LENGTH (FT.)	(51) WIDTH (FT.)
2	920	U	7	250												

(52) OWNER	(53) ENGINEERING BY	(54) CONSTRUCTION BY
MONO LAKE ESTATES	MOZZOCHI AND ASSOC(1973)	ROBERT STEM

(55) REGULATORY AGENCY			
DESIGN	CONSTRUCTION	OPERATION	MAINTENANCE
CT WATER RESOURCES	CT WATER RESOURCES	CT WATER RESOURCES	CT WATER RESOURCES

(56) INSPECTION BY	(57) INSPECTION DATE DAY | MO | YR	(58) AUTHORITY FOR INSPECTION
DAMN ENGINEERS INC	02APR80	PL92-367

(59) REMARKS
AUXILIARY SPILLWAY,31-U 32-50 33-570 Ma=C/O LUDGER GUILLEMETTE,PRES,

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER CT 00258	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Mono Pond Dam NATIONAL PROGRAM FOR INSPECTION OF NON-FEDERAL DAMS		5. TYPE OF REPORT & PERIOD COVERED INSPECTION REPORT 6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) U.S. ARMY CORPS OF ENGINEERS NEW ENGLAND DIVISION		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS DEPT. OF THE ARMY, CORPS OF ENGINEERS NEW ENGLAND DIVISION, NEDED 424 TRAPELO ROAD, WALTHAM, MA. 02254		12. REPORT DATE August 1980 13. NUMBER OF PAGES 65
14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office)		15. SECURITY CLASS. (of this report) UNCLASSIFIED 15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

APPROVAL FOR PUBLIC RELEASE: DISTRIBUTION UNLIMITED

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

Cover program reads: Phase I Inspection Report, National Dam Inspection Program; however, the official title of the program is: National Program for Inspection of Non-Federal Dams; use cover date for date of report.

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

DAMS, INSPECTION, DAM SAFETY,
Thames River Basin
Columbia, Connecticut

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

The project, reported to have been built in the early 1900's, consists of a concrete principal spillway, embankments to the right and left of this spillway and an emergency spillway near the right end of the dam. The dam is approximately 920 ft. in length, including the two spillway, and varies in width from 10 to 12 ft. at the top (EL 546). Based upon the visual inspection at the site and past performance, the dam appears to be in fair condition. In accordance with the Army Corps of Engineers' guidelines, Mono Pond Dam is classified as a significant hazard, small size dam.

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE